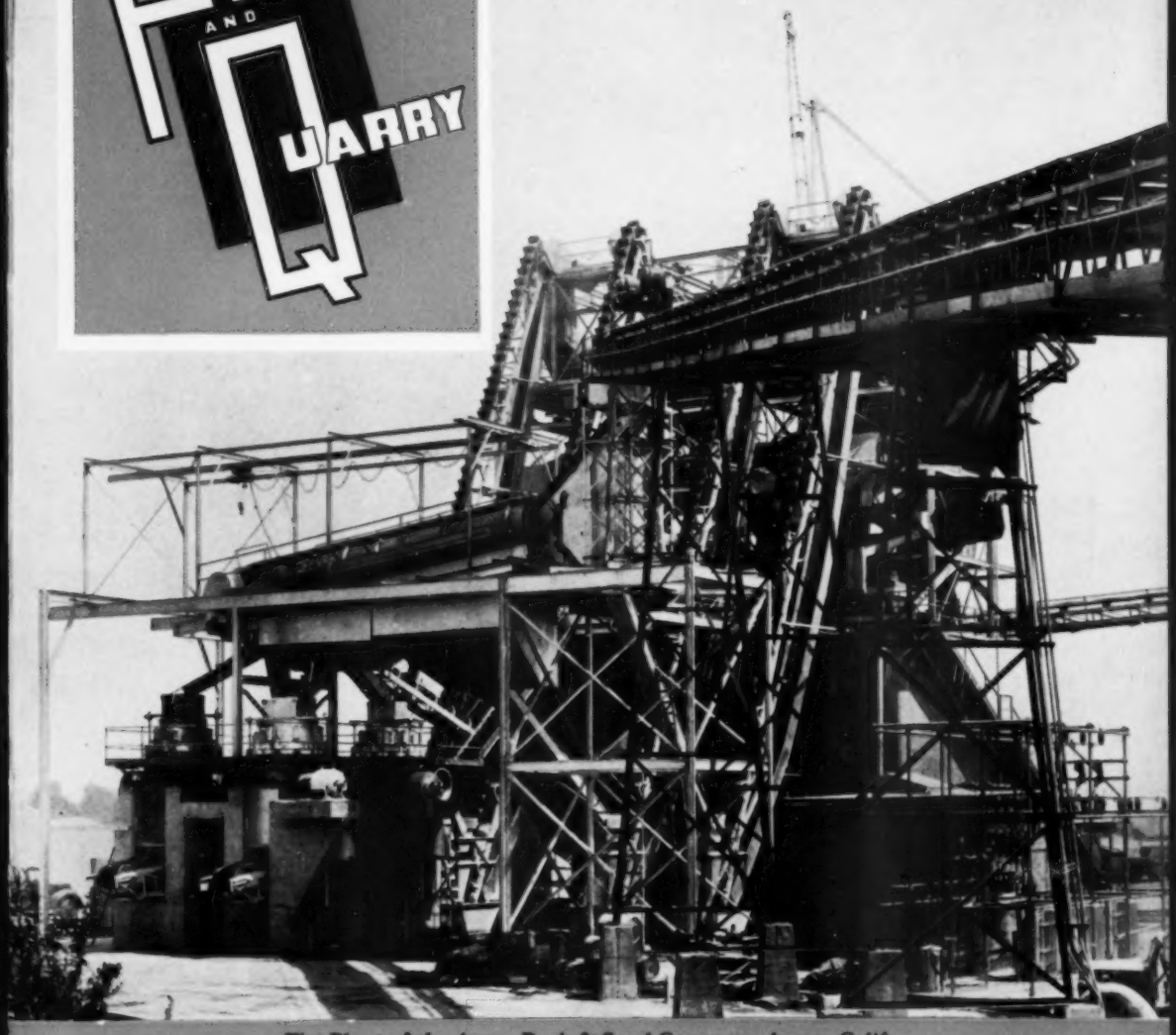
APRIL 1950

PIT AND QUARRY



The Plant of the Azusa Rock & Sand Company, Azusa, Calif.

In this Issue

Annual Meeting of A.I.M.E. • New Laboratory of National Sand and Gravel and National Ready Mixed Concrete Assns. • Plants Of Livingston Rock & Gravel, Lehigh P. C., Lockport Slag

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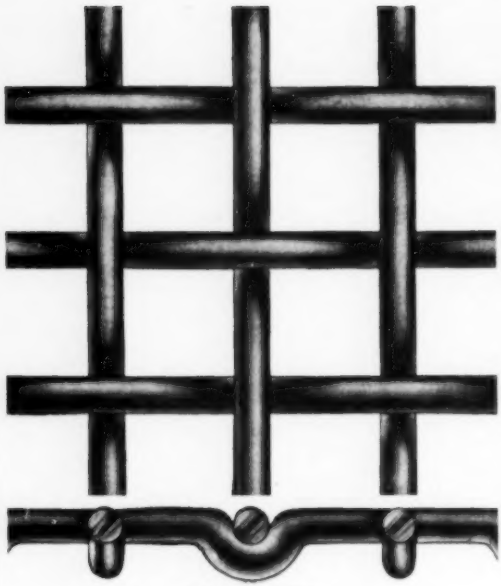
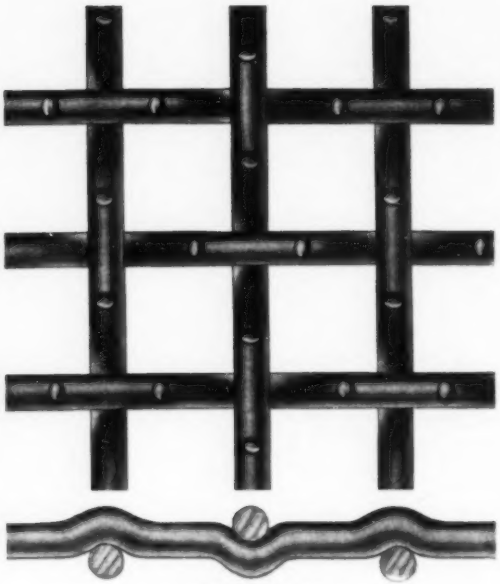


STA-SMOOTH

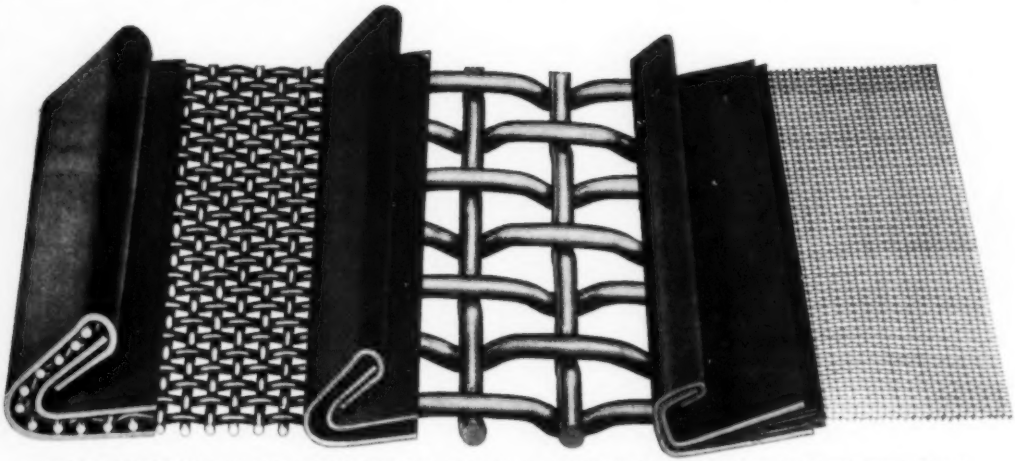


ARCH-CRIMP

SUPER-LOY VIBRATING-SCREEN SECTIONS

SUPER-HARD - - - SUPER-TOUGH - - - SUPER-STRONG

SUPER-LOY SCREENS are made from a high carbon steel specially alloyed to withstand abrasion longer — endure vibration better — resist fatigue to the utmost

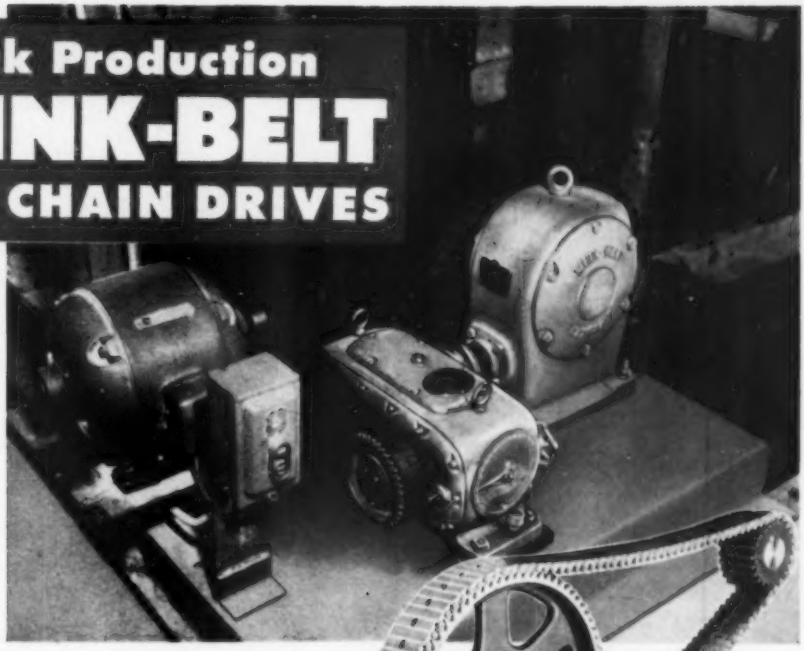


ORDER LUDLOW-SAYLOR HOOK-STRIPS FOR ALL TENSIONED VIBRATING-SCREEN SECTIONS.

THE LUDLOW-SAYLOR WIRE COMPANY

634 S. Newstead Ave. **ST. LOUIS 10, MO.**

For Peak Production use LINK-BELT SILENT CHAIN DRIVES



Easy to Select...

Easy to Install... Immediate Delivery!

Full output at rated capacity demands power transmission without slippage—such as Link-Belt Silverstreak silent chain drives have always provided. Every r.p.m. is transmitted to the driven machine. Losses due to slippage are eliminated—output is increased. Yet Link-Belt Silverstreak silent chain possesses sufficient flexibility to absorb shock. Even on short centers it runs slack with minimum wear. Moisture, temperature, age or periods of idleness have no effect on these all-steel, precision-built drives, immediately available from stock in ½ to 50 h.p. sizes. Stock Drive book No. 2125-A speeds and simplifies the selection of chains and sprockets to provide the exact drive required for any application in this horsepower range. Send for a copy, at once.

LINK-BELT Silverstreak SILENT CHAIN DRIVES

4 New Features of LINK-BELT Pre-selected Stock Silent Chain Drives

1 TAPER-LOCK BUSHINGS
Easy on—easy off—no reboring necessary.

2 PINIONS-HARDENED TEETH
All-steel, with hardened teeth. Finished bores and keyways for N. E. M. A. motor shaft sizes.

3 INTERCHANGEABILITY
Link-Belt stock silent chain and Link-Belt stock silent chain sprockets are interchangeable with silent chain sprockets and silent chains cut to same tooth form.

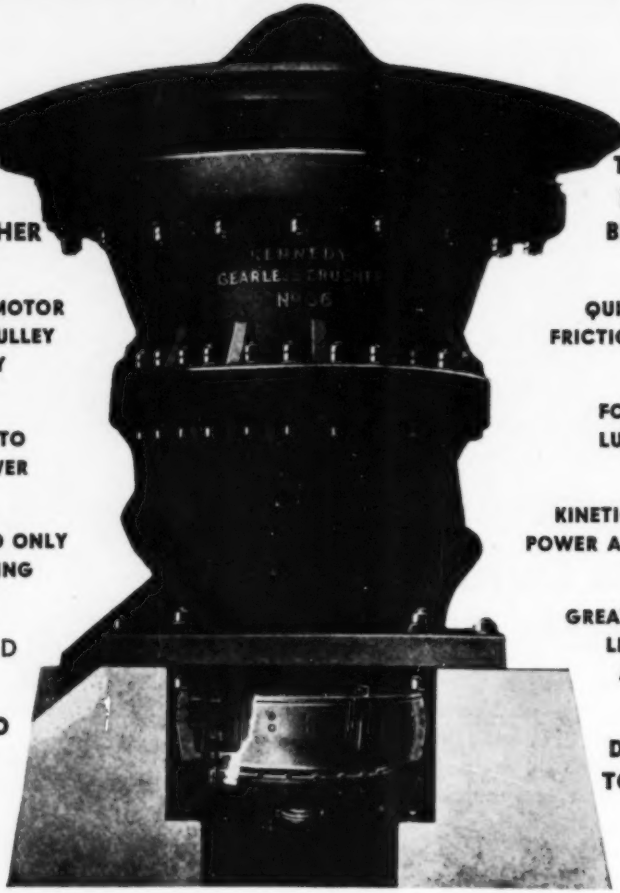
4 EASY SELECTION
Easy-to-use selection tables cover ½ to 50 h.p. stock drives, tailored for normal operating conditions.

LINK-BELT COMPANY 11.808

Indianapolis 6, Chicago 9, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8. Offices, Factory Branch Stores and Distributors in Principal Cities.

PIT AND QUARRY, April, 1950. Vol. 42, No. 10. Published monthly by the Complete Service Publishing Company, 538 South Clark Street, Chicago 5, Ill. Subscription price $3 for 1 year in the U. S. and possessions, Canada, Central and South America; elsewhere $2 additional for each year. Single copy 25 cents. Entered as second-class matter February 28, 1932, at the Post Office at Chicago, Ill., under the Act of March 3, 1879.

COSTS *LESS* TO OWN THE BEST!



No. 36 GEARLESS PRIMARY CRUSHER

•

SYNCHRONOUS MOTOR BUILT INTO PULLEY ASSEMBLY

•

NO GEARS TO WASTE POWER

•

POWER APPLIED ONLY FOR CRUSHING

•

RUGGED

•

BUILT TO LAST!

•

TYPE "S" ROLLER BEARINGS

•

QUIET, SMOOTH FRICTIONLESS ACTION

•

FORCED FEED LUBRICATION

•

KINETIC ENERGY ADDS POWER AT NO EXTRA COST

•

GREATER CAPACITY LESS POWER ALL SIZES

•

DESIGNED TO CRUSH!

•

A primary crusher of great capacity, designed to produce maximum loads of uniform products. Rugged construction assures freedom from "time off for repair." Cuts down maintenance costs, increases output, delivers more rock tonnage, faster and at lower cost.

KVS crushers are built in sizes from 12 to 3600 ton per hour capacities. 250% starting torque and 300% pull out torque permit starting of fully loaded crusher. Low power consumption assures economical operation; elimination of gears, belts and countershafts overcome frictional losses, increase efficiency.

The oiling system in the Kennedy Gearless Crusher is perfect. Approximately 4 barrels of oil per hour are constantly pumped through the bearings and there is no waste—no spillage of oil. It is the most perfect oiling system that was ever put on a crusher. These crushers have been known to run for many years without renewals to the eccentric.

KENNEDY-VAN SAUN MFG. & ENG. CORPORATION

TWO PARK AVENUE, NEW YORK 16, N. Y.

(Illustrated below)

THE HARD ROCK RIB

Companion tire for front wheels in rock work—easier steering, smooth rolling, same cord body, same shoulder and sidewall as the Hard Rock Lug.

THE ROAD LUG

Specially designed for trucks that operate both OFF- and ON-the-road. This remarkable dual-purpose tire combines off-the-road toughness and traction with on-the-road mileage and economy.

We think you'll like
"THE GREATEST STORY EVER TOLD"
Every Sunday—ABC Network

GOODYEAR's Hard Rock Lug is specially designed inside and out to give longest tire life plus greatest tire economy on the toughest jobs going.

Check these features and you'll know why: extra-tough carcass—extra-thick undertread to protect the carcass against bruising—big husky lug bars to armor tread and sidewalls against cuts and rips—a self-cleaning tread that's tops for traction.

Save on your tire dollar, get better performance—get Goodyear's Hard Rock Lug. Remember, always BUY and SPECIFY Goodyear—*it pays!*

GOODYEAR

MORE TONS ARE HAULED ON GOODYEAR TIRES THAN ON ANY OTHER KIND

Scalping Oversize from a "River" of Silica Sand...

OTTAWA SILICA CO. uses water to move sand in this Illinois sand pit operation. Tons of silica sand are flushed by water in sluiceways and pipe lines from the working face to this 4 x 8 ft *Low-Head* screen.

The screen removes all plus ⅛-in. lumps ahead of the pump sumps and has proven a practical, low cost way to scalp the huge tonnages of sand and water involved. Operators are pleased with the very small amount of maintenance required.

Low-Head screens are money-savers for a variety of dewatering and sizing applications. Here are a few reasons why:

- **Horizontal operation saves headroom, reduces installation costs.**
- **Entire screen body "stress-relieved" to eliminate strain around welds.**
- **Can be suspended by cables or floor mounted on rubber supports.**

Allis-Chalmers builds six separate types of vibrating screens—a complete line for every application from heavy duty scalping of quarry-run stone to fine mesh separations.

There is an Allis-Chalmers representative near you who will gladly look over your operations, show you exactly where and how you may be able to reduce your operating costs with proper screening equipment.

A-2942

ALLIS-CHALMERS, 974A SO. 70 ST. MILWAUKEE, WIS.

IT PAYS TO SPECIFY MOTORS... CONTROLS... V-BELT DRIVES—ALL FROM ALLIS-CHALMERS

Motors — Controls

Texrope Drives

Vibrating Screens

Jaw Crushers

Kilns, Coolers, Dryers

Gyratory Crushers

Low-Head and *Texrope* are Allis-Chalmers trademarks.

ALLIS-CHALMERS

Sales Offices in Principal Cities in the U.S.A.; Distributors Located Throughout the World.

Now! GRAMM SOLVES

EVERY PROBLEM of BULK HAULING CEMENT and other dry, powdered materials

AERATION and HYDRAULIC LIFTS DO THE JOB

Two years ago, GRAMM gave the cement industry and other handlers of dry powdered materials the aerated trailer. Since then, aeration (the use of low pressure air to make cement flow like water down a 4° incline) has been widely adopted.

Now, GRAMM couples aeration and hydraulic lifts to give you many new, significant advantages:

1. Even distribution of big payloads on the highway.
2. Powerful 40" hydraulic lifts to provide the necessary angle at the point of discharge, regardless of an unfavorable grade.
3. Longer, greater capacity tanks to take advantage of bridge law limitations.
4. Easy convertibility to fuel oil hauling in winter months.

CONTRACT HAULERS

No expensive screws to drive and maintain means lower maintenance cost and freedom from equipment lay-up. Aeration requires less power than other methods, saving on operating costs. Fast loading and quick discharge permits more deliveries per day. Aerated units have higher load to empty weight ratio.

WRITE TODAY FOR DESCRIPTIVE LITERATURE

GRAMM TRAILER CORPORATION

Sales Headquarters

DELPHOS, OHIO

ONE Grease for ALL

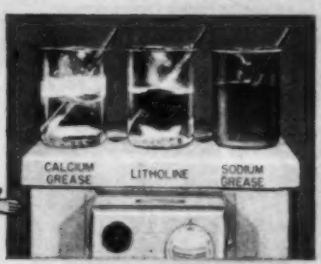
"Yes—One Grease, One Gun and A Better Job too!"

Here is a versatile grease that can be used with absolute confidence *wherever* lubrication is needed—chassis, wheel bearings, water pumps, universal joints, etc., in winter or summer—under *all* kinds of operating conditions.

These 4 Severe tests prove SINCLAIR LITHOLINE is better than any single grease!

SCENE: Sinclair's Research Laboratories, Harvey, Ill.

CAST: Two commonly-used greases of highest quality; a calcium soap chassis lubricant and a sodium soap wheel bearing grease; and Sinclair's Litholine.



WATER RESISTANCE TEST!

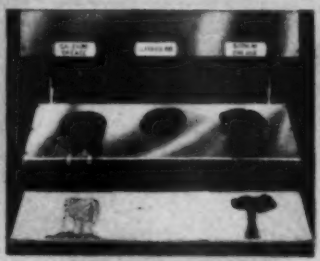
Samples of each grease are heated in beakers of water. Near boiling, the sodium grease disintegrates into soapy water and oil. Shortly after boiling the calcium grease shows foamy emulsion as grease absorbs excess water. Litholine remains unaffected, proves its superiority in combating wet conditions.

SINCLAIR REFINING

Lubrication Jobs!

LOOK WHAT ONE-GREASE—ONE-GUN LUBRICATION MEANS TO YOU...

1. Superior protective lubrication
2. No danger of misapplication
3. Less chance for contamination
4. Reduced time-out for lubrication and maintenance
5. Fewer servicing man-hours
6. Less wastage
7. Fewer dispensing units
8. Smaller grease inventories
9. Simplified purchasing and distribution
10. A finer grease at every lubrication point



HEAT-RESISTANCE TEST!

The samples are heated on a plate. At 190°F., the calcium grease disintegrates. At 340-350°F., the sodium soap structure collapses and releases the oil. Bearing failures would follow. At 390°F., Litholine shows no effects, proves superior for high temperature lubrication jobs.

MECHANICAL STABILITY TEST!

Worked (kneaded) samples are placed beside samples of unworked gr... Steel balls are dropped. Distance ball sinks in worked samples shows increase in softness—loss of stability. The calcium grease showed greatest increase in penetration, the sodium grease next. Litholine showed no difference whatever . . . proving its superior mechanical stability in service.

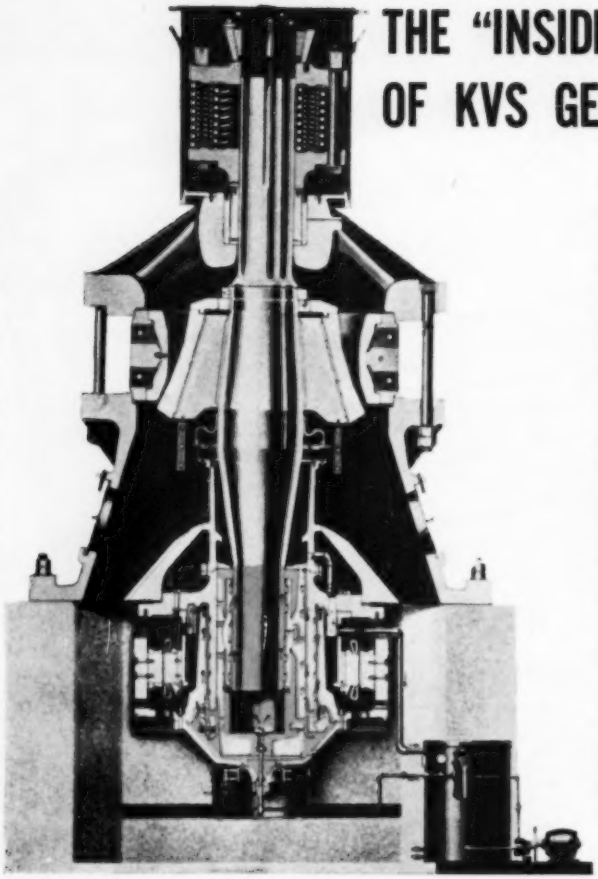
LOW TEMPERATURE PUMPABILITY TEST! Lever-type grease guns are filled with chassis greases and cooled. At 20°F., it is impossible to pump the sodium grease. At 0°F., it is impossible to pump the calcium grease. But Litholine still pumps in good volume! Yet Litholine is a heavier (harder) grease. Thus, Litholine has the body for summer service yet is pumpable in severely low temperatures.

COMPANY

For lubrication counsel, or more information on Litholine, see your nearest Supplier of Sinclair Products, or write to Sinclair Refining Company, 630 Fifth Avenue, New York 20, New York.

IT COSTS LESS TO OWN THE BEST!

THE "INSIDE STORY" OF KVS GEARLESS CRUSHERS



CUTAWAY DRAWING OF ROLLER BEARING TYPE "S" CRUSHER

The oiling system is the heart of every crusher. When it fails, bearings burn out . . . weeks of valuable time are lost in making replacements . . . work stops . . . and so does income! KVS offers the solution to this ever-present problem with their positive oiling system. Built without "gimmicks" and trick safety devices that all too often fail to work, this system is virtually fool-proof.

A simple gear pump draws oil from a serpentine cooled tank and, under pressure, pumps it through a filter to a compartment below the ball socket bearing. Oil is then forced UP between this bearing and the shaft and overflows to the eccentric and pulley bearings. This floods the roller bearings, and the oil then overflows into the storage tank. A bypass releases the pressure back into the storage tank, thus maintaining a constant and even flow at all times.

It has been proved through countless tests and is, today, the "Heart" of the famous Kennedy Gyratory Crushers. It provides a system that oils vital parts without failure and without depending on someone's memory.

IT'S CORRECTLY DESIGNED TO LAST FOR YEARS

The oiling system in the Kennedy Gearless Crusher is perfect. Approximately 4 barrels of oil per hour are constantly pumped through the bearings and there is no waste—no spillage of oil. It is the most perfect oiling system that was ever put on a crusher. These crushers have been known to run for many years without renewals to the eccentric.

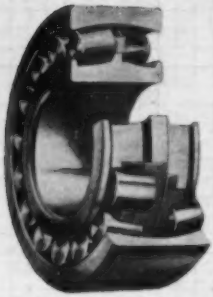
Send for engineering bulletin describing this system

KENNEDY-VAN SAUN MFG. & ENG. CORPORATION

TWO PARK AVENUE, NEW YORK 16, N. Y.

crushing big ones into little ones with

TORRINGTON SPHERICAL ROLLER BEARINGS

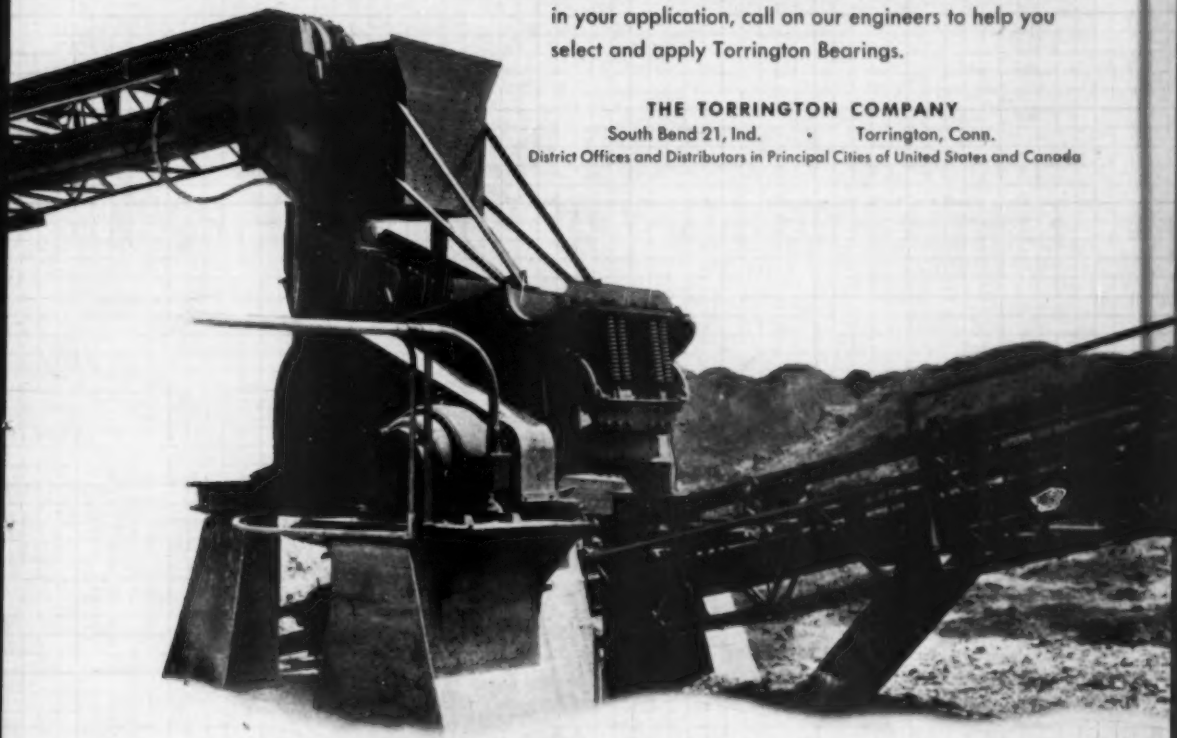


460 shock impacts per minute are absorbed by Torrington Spherical Roller Bearings as they help Barber-Greene Ebersol jaw crushers size rock to specifications.

Extreme overloads are handled with ease by these heavy-duty bearings. Because they are freely self-aligning, they maintain full roller-to-race contact for sustained capacity despite shaft deflections under shock loads.

To make sure of outstanding bearing performance in your application, call on our engineers to help you select and apply Torrington Bearings.

THE TORRINGTON COMPANY
South Bend 21, Ind. • Torrington, Conn.
District Offices and Distributors in Principal Cities of United States and Canada



TORRINGTON SPHERICAL ROLLER **BEARINGS**

SPHERICAL ROLLER • TAPERED ROLLER • STRAIGHT ROLLER • NEEDLE • BALL • NEEDLE ROLLERS

FROM START...TO FINISH

Wet rock storage area showing incline belt to trestle and trestle shuttle belt. A bulldozer pushes rock down hopper onto tunnel belt.

Incline belt to dryer receiving wet rock from tunnel reclaiming belt. View also shows dry rock storage belt gallery.

U. S. CONVEYOR BELTS INSURE CONTINUOUS FLOW OF PHOSPHATE ROCK

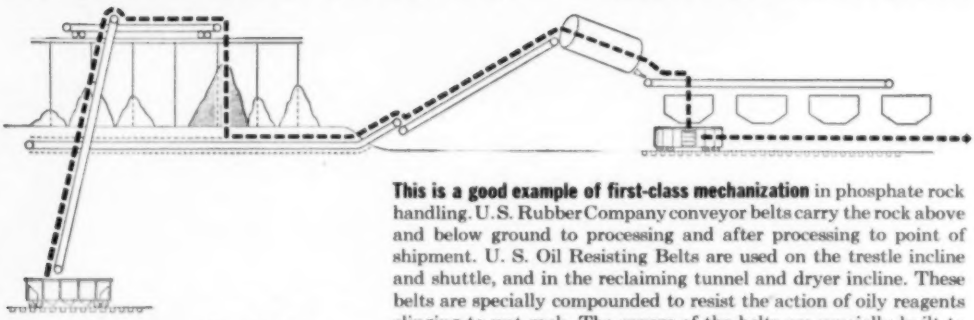


Diagram of continuous flow in phosphate rock handling field. U. S. Belting literally does all the haulage—from start to finish.

This is a good example of first-class mechanization in phosphate rock handling. U.S. Rubber Company conveyor belts carry the rock above and below ground to processing and after processing to point of shipment. U. S. Oil Resisting Belts are used on the trestle incline and shuttle, and in the reclaiming tunnel and dryer incline. These belts are specially compounded to resist the action of oily reagents clinging to wet rock. The covers of the belts are specially built to withstand the deteriorating effect of the hot sun's rays.

The dry rock storage belt is a special U. S. Hot Lump Belt of great ruggedness, especially resistant to the destructive effect of the heat from the hot, dry rock.

"U.S." belt experts are constantly finding new ways to make belting save you more money, step up your output. When you plan a new conveyor system, or when you wish to replace your present belt, get in touch with United States Rubber Company engineers.

A PRODUCT OF U.S.RUBBER SERVING THROUGH SCIENCE

UNITED STATES RUBBER COMPANY

MECHANICAL GOODS DIVISION • ROCKEFELLER CENTER, NEW YORK 20, N. Y.

(Partial view of the enormous new lubricating oil plant at Lake Charles, La., where this great new oil is processed.)

"ANTI-FOULING" OIL made by the Remarkable new "HEART-CUT" PROCESS

This new oil—the best known to science... gives you a cleaner engine... more economy ...minimum carbon residue.

It's here now! The remarkable motor oil from the giant new $42,000,000 lubricating oil plant at Lake Charles, La. The plant that's been the big talk of the oil industry for months.

New Premium Koolmotor is made by the unique "Heart-Cut" Process which retains only the choicest part of the finest crudes. *It's so superior that in recent engine tests it outscored nine other major premium motor oils.* No wonder Premium Koolmotor is better in every way! Cleans better, seals better, cools better and fights acid, sludge and corrosion far more effectively. Switch to this remarkable new oil today.

start saving Dollars today... stop at

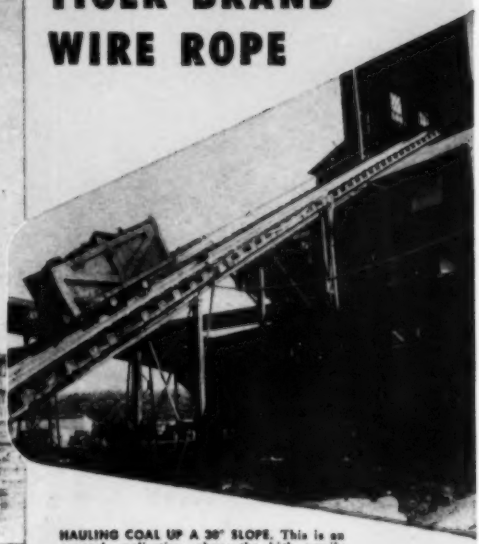
CITIES SERVICE

Judge it by the jobs it handles

TIGER BRAND WIRE ROPE

LIFTING ROCK. Tiger Brand Wire Rope is used extensively at the Cleveland Quarries to lift blocks of limestone weighing many tons. The problem here is to obtain a rope with high abrasion resistance, great strength and the proper flexibility for use on small sheaves. Tiger Brand is giving long service under these severe conditions.

THE TIGER SWINGS IT on a special sling made for handling heavy blocks of stone. Wire Rope slings can be obtained to fit your own needs. They do not wear away like hemp and there is no weakest link, as in chains.



HAULING COAL UP A 30° SLOPE. This is an unusual application where the high tensile strength of Tiger Brand Wire Rope assures utmost safety.

NO job is too big . . . too small . . . or too tough for Tiger Brand Wire Rope. You'll find it scooping up 40 cubic yards or more of dirt and rock at a bite on the biggest power shovels—or your wife may be using a smaller size for a clothes line. In either case the rope is correctly designed for the job it handles.

Whatever the application, the Tiger Brand Specialist in your area can help you choose the best wire rope for your needs . . . and he can give you valuable tips on how to care for your rope to get the most service per dollar of cost. Call him in or write for our 125-page handbook on American Tiger Brand Wire Rope. It's yours for the asking.

AMERICAN STEEL & WIRE COMPANY, GENERAL OFFICES: CLEVELAND, OHIO
COLUMBIA STEEL COMPANY, SAN FRANCISCO
TENNESSEE COAL, IRON & RAILROAD COMPANY, BIRMINGHAM, SOUTHERN DISTRIBUTORS
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

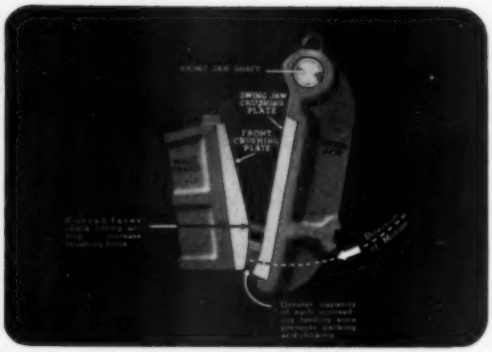
USS

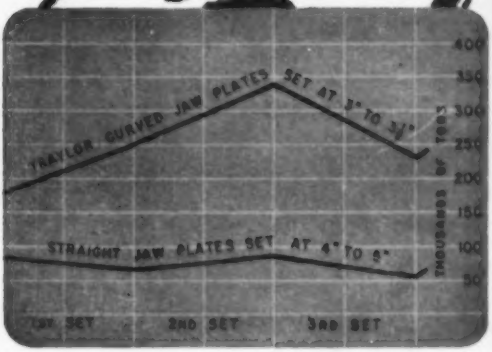
AMERICAN TIGER BRAND WIRE ROPE

Excellay Preformed

UNITED STATES STEEL

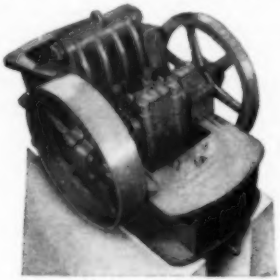
What do I Know about crushing





Plenty Mister! See those *curved* jaws of mine? When something gets between them it doesn't slip—it gets crushed! Nature *curved* my jaws to use every bit of strength for direct crushing. Traylor *curved* jaw plates use this same principle to attain outstanding performance.

For instance, records kept on a 36″ x 48″ crusher at a setting of 4″ to 5″ show the average life of straight jaw plates to be 96,500 tons per set. Traylor smooth-face *curved* jaw plates fitted to this crusher and *set at* 3″ to 3½″ *averaged* 276,724 *tons*.



Only Traylor smooth-face *curved* jaw plates, in a Traylor Jaw Crusher, like this Model HB, *or fitted to your present equipment* can give you this profitable performance. Traylor makes other jaw crushers, from 8″ x 12″ to 66″ x 86″, the largest and strongest in the world.

Write today for Bulletin 3105. It gives full details of the Traylor Model H and HB Jaw Crushers and clearly explains the operating principle of Traylor non-chokable, smooth-face *curved* jaw plates.

Traylor

Rotary Kilns, Coolers and Dryers
Grinding Mills · Crushing Rolls
Jaw, Reduction and Gyratory Crushers

TRAYLOR ENGINEERING & MANUFACTURING CO.
137 Mill St., Allentown, Pa.

Sales Offices: New York, N. Y., Chicago, Ill., Los Angeles, Calif.
Canadian Mfrs: Canadian Vickers, Ltd., Montreal, P. Q.

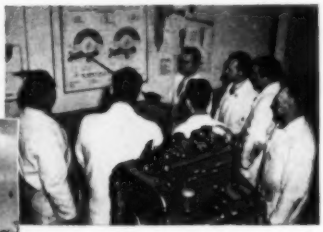
A "TRAYLOR" LEADS TO GREATER PROFITS

Wherever you are you're not far from

...GM DIESEL

OWNERS of General Motors Diesel engines and GM Diesel-powered equipment know they can depend upon receiving courteous service *after* as well as *before* the sale. They know that, wherever they are, a GM Series 71 Diesel Distributor or Dealer is ready to answer call for a quick tune-up, a repair or a Factory-Engineered GM Diesel part. Staffs of factory-trained service men have the tools, the know-how and a thorough, capable interest in seeing that every engine delivers its best. Here, for your convenience, is a list of GM Diesel Industrial Distributors and Dealers in strategic locations throughout the United States.

Service Backed by Training



IN THE FIELD—Completely equipped Mobile Training Units, currently touring the country, bring specialized instruction in the proper operation and maintenance of GM Diesel engines to contractors' personnel. Itinerary of the units includes scheduled visits to major construction and mining projects as well as stops at GM Distributor points where groups of smaller contractors' personnel meet for 2 or 3 day courses.

AT THE FACTORY—GM Distributor and Dealer service men, as well as customer personnel, take courses in the maintenance and repair of GM Series 71 Diesel engines at the Detroit Diesel Engine Division Factory Service School. Classes of 12 students are scheduled every two weeks. Enrollment is limited so that each participant may be assured of personalized instruction, with emphasis on actual shop procedures.

Diesel Brawn Without the Bulk

GM
GENERAL MOTORS
DIESEL POWER

ALABAMA—Birmingham
ARMSTRONG EQUIPMENT CO.
Montgomery
ALABAMA MACHINERY & SUPPLY CO.

ALASKA—(Seattle, Wash.)
Anchorage, Fairbanks
YUKON EQUIPMENT, INC.

ARIZONA—Phoenix
STATE TRACTOR & EQUIPMENT CO.

ARKANSAS—Stuttgart
EDDINS SERVICE
Little Rock
LEWIS DIESEL ENGINE CO.
Morrilton, LOVE SUPPLY CO.
Fort Smith
R. A. YOUNG & SON, INC.

CALIFORNIA—Los Angeles
ANDERSON-O'BRIEN CO.
Lancaster, LANCASTER ENGINE CO.
Stockton, Fresno
MOORE EQUIPMENT CO., INC.
Berkeley, Ft. Bragg, Eureka, N. Sacramento
WEST COAST ENGINE & EQUIPMENT CO.
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SINGLE ENGINES...Up to 275 H.P. **DETROIT 28, MICHIGAN** MULTIPLE UNITS...Up to 800 H.P.

GENERAL MOTORS

REPUBLIC ELEVATOR BELTING Ended Costly BREAKDOWNS IN THIS QUARRY

Not one breakdown since Republic Elevator Belting was installed two years ago—that's the story at the T. B. Gatch & Son Quarry in Calvary, Maryland!

Their primary crusher spews out hundreds of tons of crushed rock daily, and every pound of it is carried off via elevator belting. When other ordinary belts proved inadequate, and a series of paralyzing breakdowns disrupted production schedules, Republic was called in to analyze the problem.

Republic's Baltimore Distributor, Robins Rubber Division of the A. K. Robins & Company, recommended Excelo Elevator Belt.

Today, after a grueling two-year run, the same belt is still giving uninterrupted service . . . going strong as ever!

Matching the product to the job is a Republic policy that's paved the way for success stories like this in every industry. This service, meaning trouble-free operation, is available to you. So write us today about your toughest hose or belting problems. We'll introduce you to your local Republic Distributor . . . a man who has the answers! Remember, Republic Rubber has been *the* specialist in the industrial rubber goods field for more than 48 years.

Mr. H. E. Brodnax, Manager
Robins Rubber Division
A. K. Robins & Company, Inc.
Baltimore, Md.

Pioneers in the use of COLD RUBBER

REPUBLIC RUBBER DIVISION
LEE RUBBER & TIRE CORPORATION, YOUNGSTOWN, OHIO
Lee Deluxe Tires & Tubes - - - Conshohocken, Pa.

MECHANICAL RUBBER GOODS BY
REPUBLIC RUBBER DIVISION

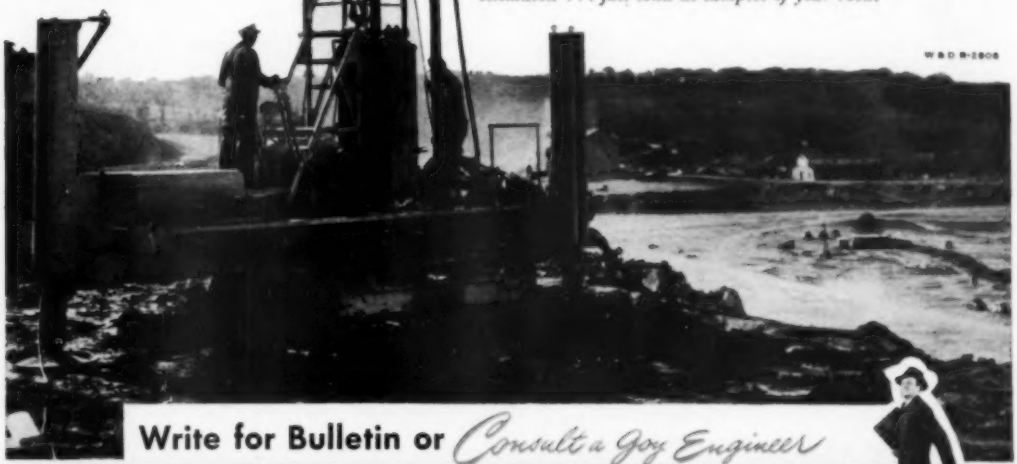
Here's FASTER, LOWER-COST BLAST HOLE DRILLING!

The New JOY CHAMPION ROTARY DRILL

TWO MODELS

Illustrated, the JOY CHAMPION Heavyweight Drill. Mounted on sturdy crawler treads . . . sets up quickly, with centrally controlled hydraulic leveling. Also built in a Middleweight model—both sizes with either diesel, gasoline or electric drive.

DRILLS *DRY*—not only saves water costs and eliminates winter-freezing, but most important, gives you far more footage daily (*actually 5 or 6 times more*) than with conventional drilling methods, and at far lower cost per foot. The JOY CHAMPION continuously pressure-cuts the rock with a rotating tri-cone roller bit—shows exceptionally long bit life, even in dense dolomitic limestone. Rugged and self-propelled, it drills a 5⅝" to 7⅞" hole perfectly straight and smooth-walled, insuring easier and safer powder loading and better fragmentation. ● *Want performance estimates? . . . just send us samples of your rock!*



Write for Bulletin or *Consult a Joy Engineer*

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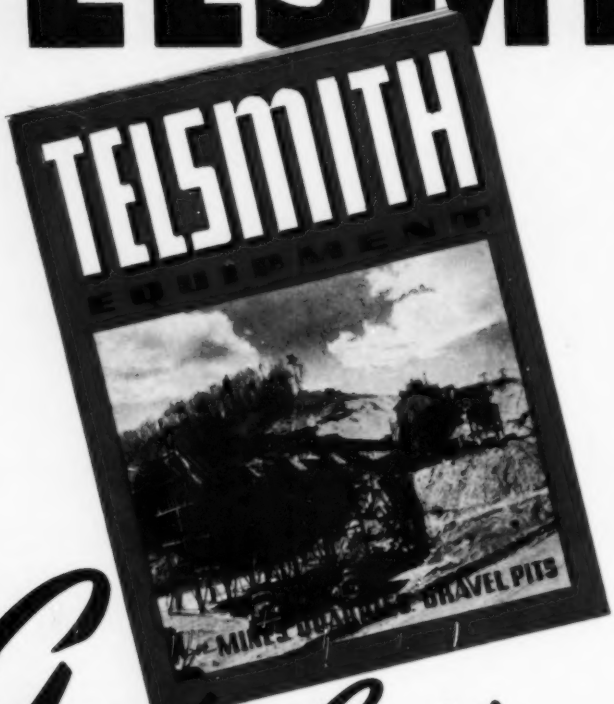

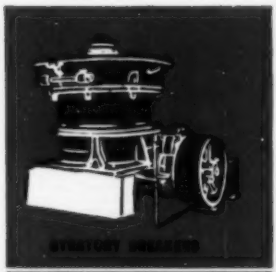

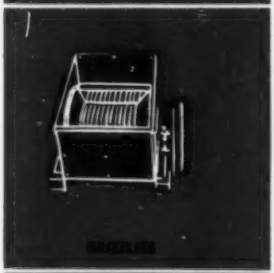

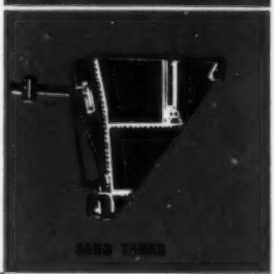

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Crushing and screening practices and plants change. New types and sizes of equipment are here. Latest developments are included in the new 36-page Telsmith catalog. New equipment . . . in new combinations . . . can give you more product flexibility, in making more and smaller sizes . . . better quality . . . with *larger capacity!* Telsmith makes the *right* type, model or size to suit your own particular needs. Just ask for the new Telsmith Equipment Guide 266 . It's free! ES-7

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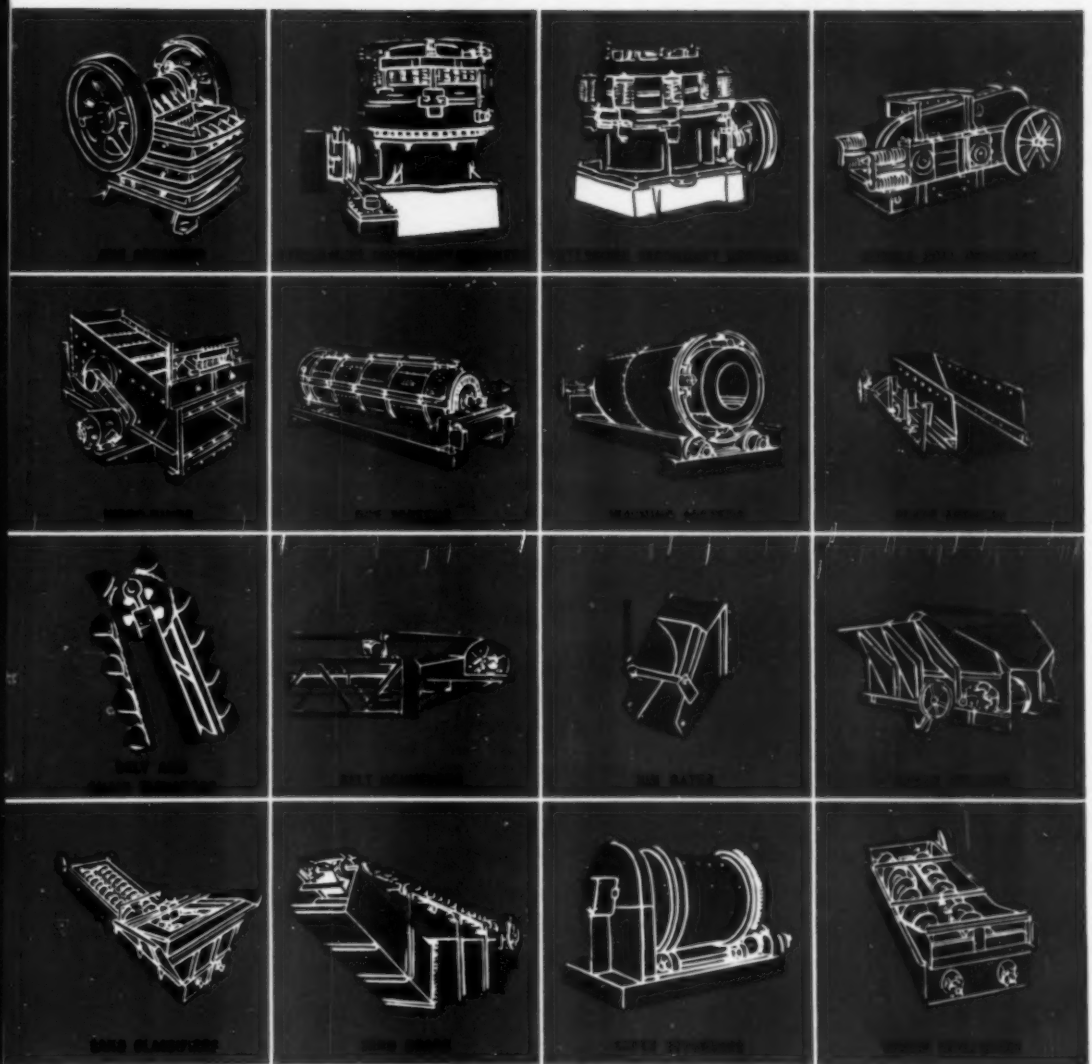
Equipment



SMITH ENGINEERING WORKS, 504 E. CAPITOL DRIVE, MILWAUKEE 12, WISCONSIN

Cable Address: Sengworks, Milwaukee

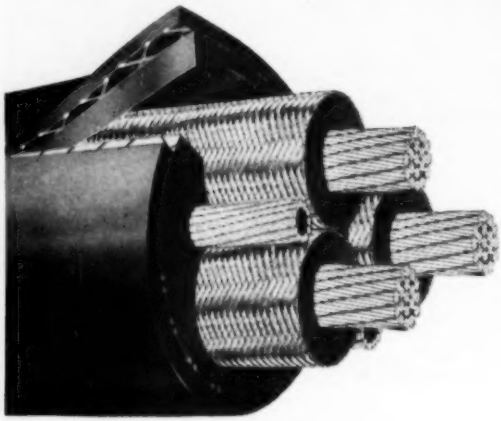
51 East 42nd St. New York 17, N.Y. · 211 W. Wacker Dr. Chicago 6, Ill. · 713 Commercial Trust Bldg. Philadelphia 2, Pa. · 238 Main Street Cambridge 42, Mass. · Boehck Eqpt. Co. Milwaukee 3, Wis. · Brandeis Machinery & Supply Co. Louisville 8, Ky., & Evansville, Ind.

Clyde Equipment Co., Portland 9, Ore., & Seattle 4, Wash. • Mines Eng. & Eqpt. Co., San Francisco 4, Calif. • Interstate Equipment Co., Statesville, N. C. • Rish Equipment Co., Charleston 22, & Clarksburg, W. Va.—Roanoke 7, & Richmond 10, Va. • Wilson-Weesner-Wilkinson Co., Knoxville 8, & Nashville 6, Tenn.

It's Butyl-Insulated!

SECURITYFLEX type SHD

Better for your high-voltage, heavy-duty big shovel jobs!



The newly improved Securityflex* Type SHD is better because it's BUTYL-INSULATED for superior electrical and mechanical characteristics. It stands up better under compression and mechanical abuse, has increased moisture resistance and much higher heat resistance (rated at 80° C.).

Better because it has a new "copper-cotton" combination shield that

means faster, easier splicing
eliminates chafing failures

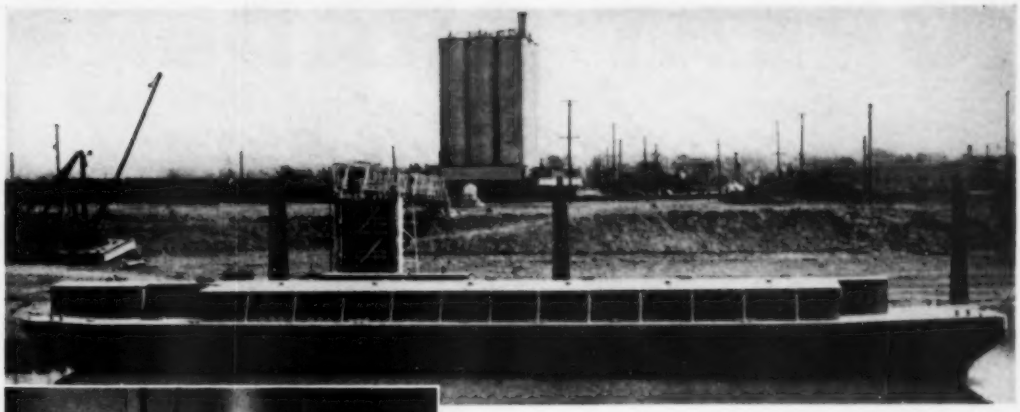
Better because the patented grounding wires are rubber-cored. That means grounding wires that

will not kink
have larger diameter for greater contact with conductor shield
provide cushioned construction that won't cut insulation

It all adds up to a much more rugged shovel cable. For more information on Securityflex Type SHD, get in touch with your nearest Anaconda Sales Office or Anaconda Distributor. Anaconda Wire & Cable Company, 25 Broadway, New York 4, New York.

*Reg. U. S. Pat. Off.

the right cable for the job ANACONDA®
WIRE AND CABLE



Conveying from Barge to Silos with F-K Pumps

It's not a difficult or unusual job for Fuller-Kinyon but, try and do it as economically and efficiently in any other way! Fuller-Kinyon makes the seemingly difficult and impossible easy to accomplish.

Illustrated is one method in use today for transporting bulk Portland cement, made economically possible through the application of Fuller-Kinyon Pumps. This company operates seven barges, 7500 barrels capacity each, to transport cement from its cement plant to a storage and distributing station in the South. Each barge is permanently equipped with a Fuller-Kinyon Stationary Pump, which conveys cement from barge to silos on shore at rate of 400 barrels an hour. Approximate conveying distance 1200 feet.

Convey the Fuller-Kinyon way—through pipe lines by air. Conveying lines can be placed overhead or buried underground; no bridges or monitors necessary. Will not interfere with building layout or equipment installed. In addition, cleanliness and safety for the workmen; no dust collectors necessary.

When you have a conveying problem, tell us about it. Chances are we can help. Layouts and estimates furnished without any obligation.

Write for Bulletin FK-30A, 24 pages on how to handle bulk Portland cement with Fuller equipment.

FULLER COMPANY, Catasauqua Pa.
120 S. LaSalle St., Chicago 3
420 Chancery Bldg., San Francisco 4

P-109A

fuller

DRY MATERIAL CONVEYING SYSTEMS
AND COOLERS—COMPRESSORS
AND ASSOCIATED EQUIPMENT

GREAT GRADERS

...and here's the proof!

THERE'S no guessing about the performance of "Cat" Diesel Motor Graders with Gustafson & Reynolds, Sioux Falls, South Dakota. They know from experience these husky yellow machines really pay off in quarry operations. Ruggedly built from stem to stern, they deliver 60-minute production hours day after day under grueling conditions.

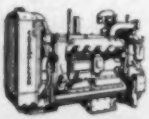
Here you see a "Cat" Diesel No. 12 Motor Grader busy stock-piling gravel near Sturgis for this outfit. Working in second gear on grades as steep as 15%, it handles 2000 yards of gravel per 10½-hour day. The pile is 15 ft. high by 300 ft. long. There's horsepower aplenty in the No. 12 to take this task in stride, as well as to "double in brass" on road construction and road graveling. From crusher to roadbed, it's an efficient, economical tool to get work done—and it rates high both with owners and operators. Chet Heisler, operator, says: "Stock-piling gravel is never a very easy job with a grader, but the No. 12 handles the job very nicely with a reasonable fuel cost."

Whatever the grading job, there's a "Cat" Diesel Motor Grader the right size to do it most profitably for you. And there's a capable "Caterpillar" dealer near-by who's ready round-the-clock to give you "Johnny-on-the-spot" service. He sincerely believes this rugged yellow machine is the best in the field. Ask him for full proof of its performance!

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

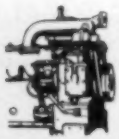
Only "Caterpillar" designs and builds *every* part of the famous "Cat" Motor Graders. This undivided responsibility is your assurance of a long life of efficient economical performance.

Each of the 3 sizes of "Cat" Motor Graders is a completely different machine. There's no performance penalty due to *excessive frame weight*, too little power or poorly matched working parts.



Only "Caterpillar" Motor Graders have the dependable yellow engines—the power plants that are world famous for delivering 60-minute-hour performance every hour day in and day out.

Lubricating oil is cooled in this radiator section to minimize carbon lacquer and gum formations—enemies of long engine life. Lower temperatures preserve the lubricating qualities of the oil.



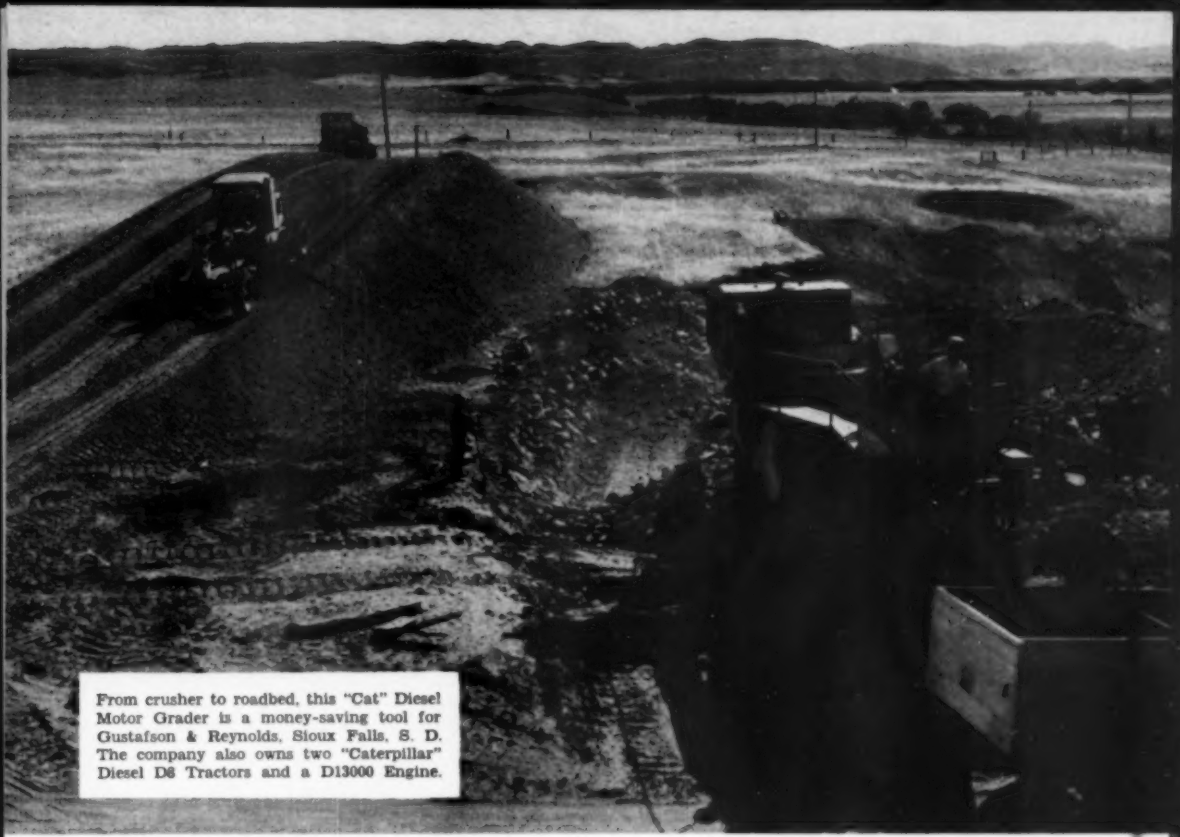
Safe and sure Diesel starts are assured by this electrically started gasoline engine. It warms the coolant and allows the Diesel to circulate "lube" oil before actual starting.

Castings like this cylinder head on "Cat" Diesels are made right in "Caterpillar's" own foundry, where tolerances and quality can be closely controlled—another example of precision engineering!

CATERPILLAR

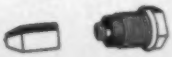
REG. U. S. PAT. OFF.

ENGINES • TRACTORS • MOTOR GRADERS



From crusher to roadbed, this "Cat" Diesel Motor Grader is a money-saving tool for Gustafson & Reynolds, Sioux Falls, S. D. The company also owns two "Caterpillar" Diesel D8 Tractors and a D13000 Engine.

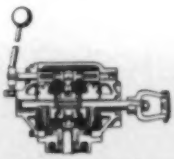
Typical of "Caterpillar" quality are these aluminum alloy pistons. Tops are oil sprayed for coolness and long life. Cast iron compression-ring belt keeps this vital ring working at top efficiency.



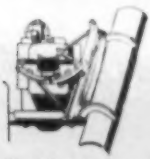
"Caterpillar"-built fuel injection equipment is trouble-free and fool-proof. Injection capsules and pumps can be replaced on the spot in the field — no adjustments are necessary.

Exclusively "Caterpillar," these solid aluminum "con" rod bearings give low rate of wear, ability to carry heavier loads, exceptional heat transfer characteristics and high corrosion resistance.

"Caterpillar" Motor Graders are designed for exceptionally good operator visibility. Sitting down, the operator can see toe and heel of the blade with equal ease. That helps keep jobs moving.



Mechanically operated controls give the user the constant control that is so necessary for precision work. They're quality built — changes in temperature do not affect them.



"Caterpillar's" exclusive side-shift mechanism allows extreme blade positions without the need for manual adjustment of linkage. You'll find this a real work- and time-saver on the job.

DIESEL

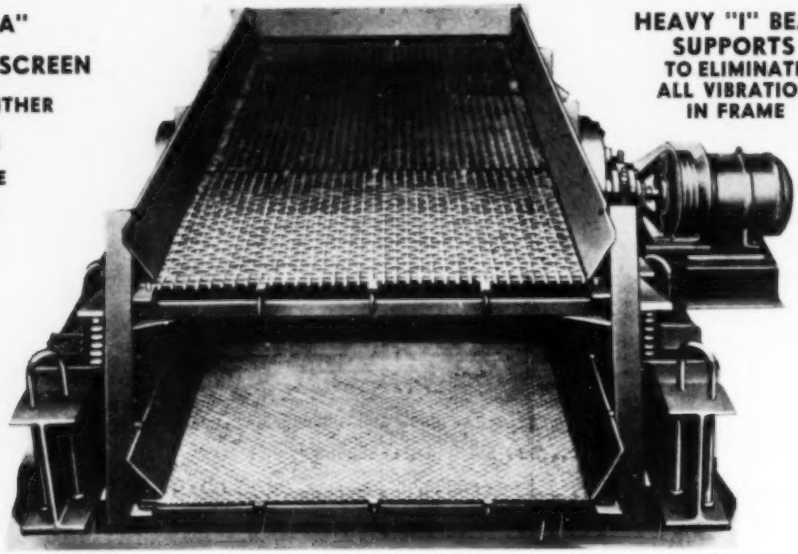
EARTHMOVING EQUIPMENT

Ask your dealer for a demonstration! Ask him for a showing of the new film, "Better Blading"!

COSTS *LESS* TO OWN THE BEST!

THE VIBRATING SCREEN WITH THE "FOUR-WAY" MOTION

TYPE "A" VIBRATING SCREEN
BUILT-IN EITHER
SINGLE
DOUBLE
TRIPLE
DECKS



HEAVY "I" BEAM SUPPORTS TO ELIMINATE ALL VIBRATION IN FRAME

ECCENTRIC FLY-WHEEL GIVES OSCILLATING MOTION
PROVIDES MAXIMUM EFFICIENCY IN SIZING MATERIALS

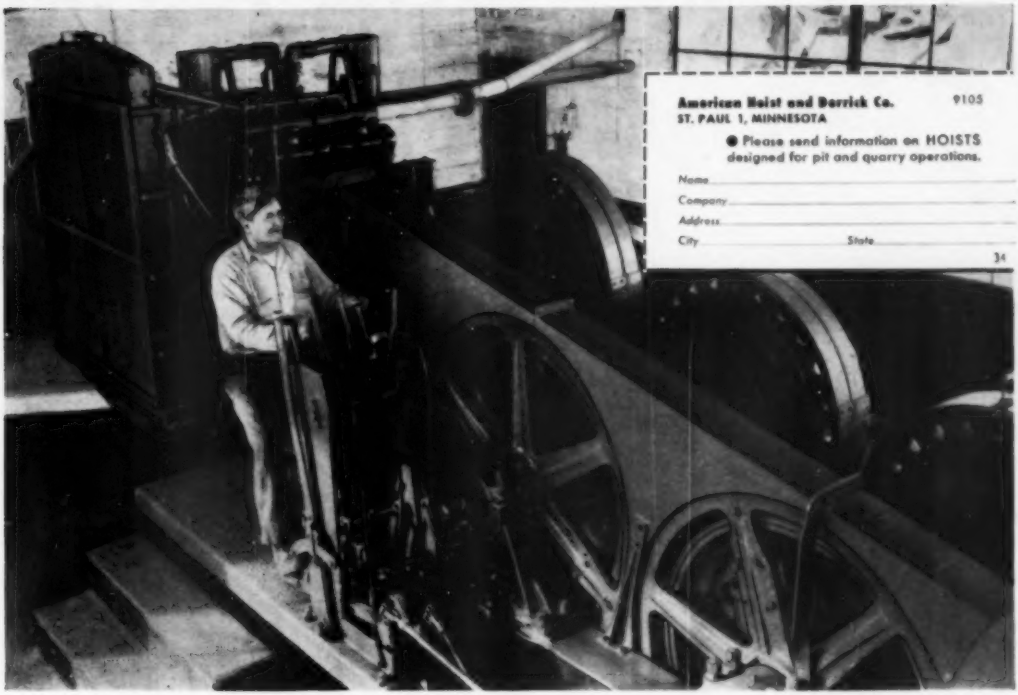
One of the most efficient vibrating screens ever built. Heavy construction throughout plus simplicity of adjustment. Can be tilted at any desired angle with either turn buckles or rigid supports.

Screens available in wire mesh, punched steel plate or manganese plate. Specially adapted for the handling of rocks mixed with colloidal materials. Can be used for scalping from large jaw type or gyratory crushers.

Drive belt enclosed in special covered housing for protection from dust, dirt and water. Can be operated at variable speeds to suit type of material being screened. Can be built fully covered to prevent escaping dust.

Send for bulletin describing the full line of KVS screens

KENNEDY-VAN SAUN MFG. & ENG. CORPORATION
TWO PARK AVENUE, NEW YORK 16, N. Y.



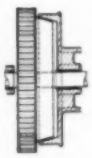
American Hoist and Derrick Co. 9105
ST. PAUL 1, MINNESOTA

● Please send information on HOISTS designed for pit and quarry operations.

Name_____
Company_____
Address_____
City_____ State_____

34

The hoist that delivers in the clutch



WHAT QUARRY MEN SHOULD KNOW ABOUT CLUTCHES

CONE TYPE clutches, operated by lateral pressure, create side thrust on frame of the hoist. Must be held under pressure when engaged, and need spring release mechanism. Adjustment and maintenance relatively difficult. Heat is created internally, and is not readily dissipated.

CONTRACTING BAND clutches on AMERICAN hoists are engaged by external band action. Clutch is self-energizing. One set screw, easily reached, gives instant adjustment. All parts needing maintenance are accessible. Bands reversible for extra wear. Fins quickly dissipate created heat.

When the chips are down, and you have to call on men and machines for "impossible" performance . . . it's a pleasure to own an AMERICAN hoist. In that kind of a situation, you'll notice some amazing differences in the way a hoist can behave. First—you'll notice extra production without a sign of strain. Second—an effortless, precise operation that keeps the operator fresh and rested. Third—your AMERICAN hoist stays cool and quiet while another may be smoking hot, noisy and seeming to labor in every part.

The reasons? There are many . . . but important as any is the AMERICAN hoist *friction clutch*. It's an external, contracting band mechanism. Wonderfully smooth, instantly responsive . . . and always tuned to "concert pitch", because repair and maintenance are simple, quick and easy.

Want to find out how such a hoist fits *your* business? Mail coupon today, for literature telling the story.

American Hoist
and DERRICK COMPANY
St. Paul 1, Minnesota

Plant No. 2: So. Kearny, N. J. • *Sales Offices:* NEW YORK, PITTSBURGH, CHICAGO

THE WIDE LINE OF AMERICAN HOISTS OFFERS THE RIGHT SIZE, THE RIGHT TYPE, THE RIGHT POWER, FOR ANY JOB

Single Drum Hoist

Double Drum Hoist

Three Drum Hoist

Four Drum Steam Hoist

Three Drum Hoist

Horner and Switzer move 220,000 with 3 rear-dump

On this mountainous highway job, Tournarocker's quick, easy maneuvering cut important seconds off every haul cycle. Ability of the 2-wheel prime mover to make 90° turns gives the big Tournarocker a short turning radius of 12'6"... and it really paid off here.

220,000 yards of mountain-top granite . . . altitudes up to 8300 feet . . . narrow, precipitous haul trails . . . and continual heavy rains, almost every other day. These were the conditions which Contractors Horner & Switzer tackled on relocation of U. S. Hwy. 280, from Granby Dam to Monarch Lake, Colorado. They drove in a fleet of 3 LeTourneau rear-dump Tournarockers, teamed them up with a 2½-yard rock shovel, and got the following big-yardage results:

Averaged 10½ bank yds. per load

Contractor's crew estimated the rock wagons carried 10½ bank yards of granite each trip. They were loaded in an average of 7 passes from the 2½-yard dipper. In extreme hard digging, it often took the shovel 4½ minutes to load each rig. Haul cycles were so fast that on most haul distances only 2 of the Tournarockers were needed to keep the shovel busy. For example:

1240' haul, dump, return in 4¼ min.

Hauls on the job ranged from a few feet up to a half-mile. Checked on a 1240-foot, one-way haul, including a 170-foot stretch of 13% adverse grade, each Tournarocker took only 4¼ minutes to travel, dump, and return to the shovel.

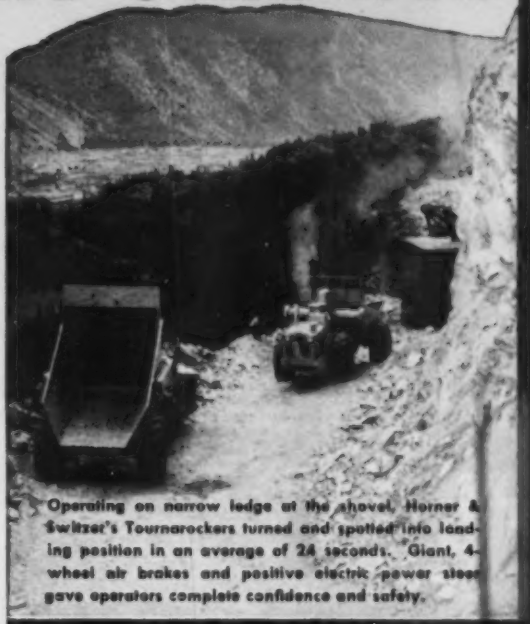
These fast cycles on the mountain-side trails were possible because Tournarocker's 4-wheel air brakes let operators haul

Dumping took only 8 seconds, with Tournarocker's powerful, fast-acting, electric body hoist. Vertical dump position and the smooth, clean, streamlined body cleared loads instantly. Power is on the Tournarocker's *front* wheels.

LETOURNEAU PEORIA, ILLINOIS **TOURNAROCKERS**

TRACTION ADVANTAGES of A CRAWLER PLUS HIGH-SPEED on RUBBER

Yds. MOUNTAIN GRANITE
TOURNAROCKERS



Operating on narrow ledge at the shovel, Horner & Switzer's Tournarockers turned and spotted into loading position in an average of 24 seconds. Giant, 4-wheel air brakes and positive electric power steer gave operators complete confidence and safety.

heavy loads at maximum speeds with complete safety. 4,108 square inches of braking surface . . . *more on one wheel than most haulers have on all four wheels* . . . gave sure, safe stops every time. Short, 90° turns, and positive electric steer by push-button control, permitted quick turning and spotting on the dump and at the shovel.

8-second dump

Dump was fast . . . simple, electric body hoist tilted the wide, streamlined body to vertical position . . . cleared the 10½-yard loads in just 8 seconds, total hoist and dump time. Because of their front-wheel drive, and holding action of powerful 4-wheel brakes, the Tournarockers safely backed up to edge of bank, and dumped loads over the bank eliminating rehandling . . . saving dozer clean-up.

All these Tournarocker advantages for big-payload, fast-cycle hauling gave Horner & Switzer the lowest-cost answer on their tough mountain highway job. What's more, they drove their big 16-ton capacity rigs to the job from Denver . . . made the 120-mile trip, via the Berthoud Pass, in less than a day.

If you haven't checked the new, low hauling costs possible on your work with these revolutionary rear-dump Tournarockers, better get all the facts from your LeTourneau Distributor right away. Write or call him NOW!

Big 11'2" x 7'10" top opening, plus low body position, gave the shovel operator an easy-loading target. These big-capacity LeTourneau rock wagons maneuvered in close . . . hauled an average load of 10½ bank yds. of granite.

Tournarocker, Tournapull, Tournadozer, Tournadozer Reg. U.S. Pat. Off.

Send Today for complete facts **to R. G. LeTOURNEAU, Inc., Peoria, Ill.**

We're interested in . . . ☐ specifications ☐ price ☐ job analysis on the 16-ton, rear-dump, 816 Tournarocker

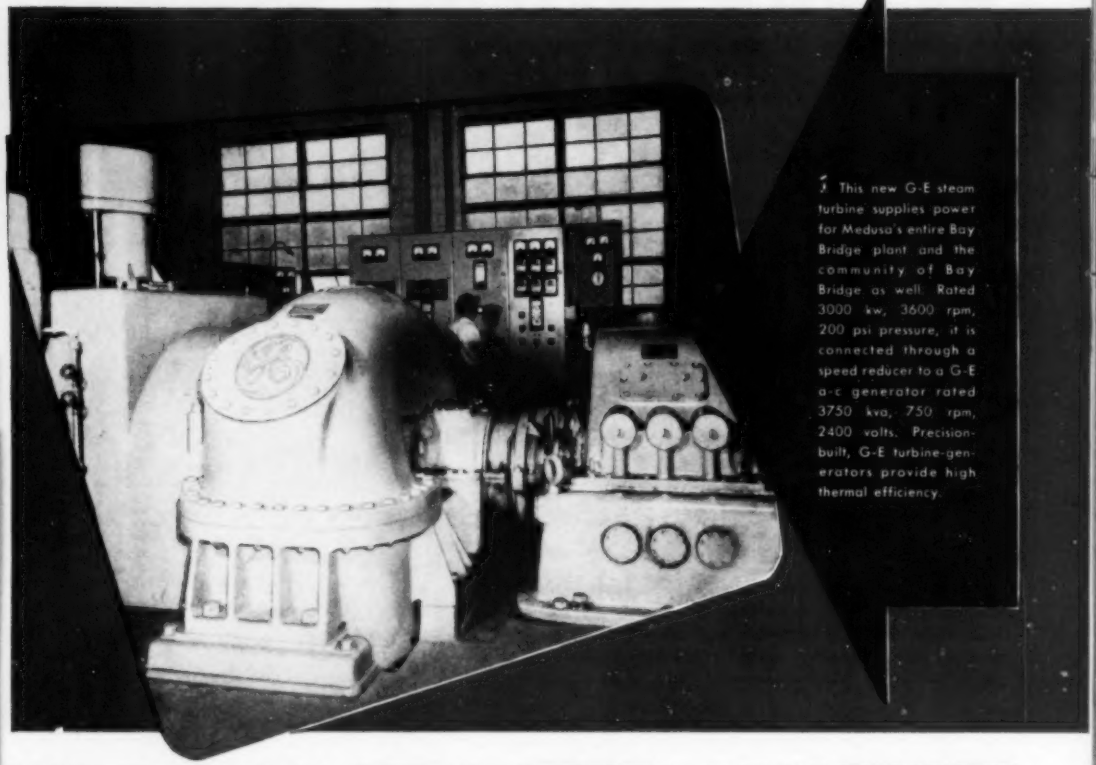
NAME..... TITLE.....

COMPANY..... TYPE OF BUSINESS.....

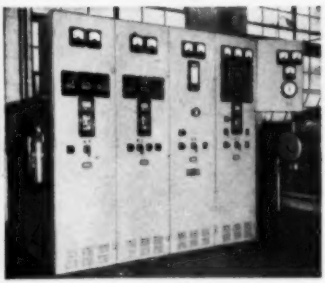
STREET..... CITY..... STATE.....

Would also like information on ☐ 13.5-yard C Tournapull ☐ 7-yard D Tournapull ☐ rubber-tired Super C Tournadozer

LeTOURNEAU LET EQUIPMENT

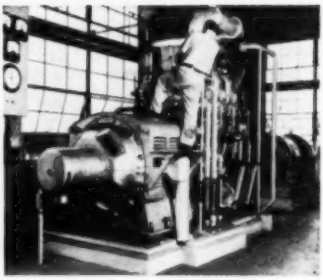


1 This new G-E steam turbine supplies power for Medusa's entire Bay Bridge plant and the community of Bay Bridge as well. Rated 3000 kw, 3600 rpm, 200 psi pressure, it is connected through a speed reducer to a G-E a-c generator rated 3750 kva, 750 rpm, 2400 volts. Precision-built, G-E turbine-generators provide high thermal efficiency.



2 For the power distribution system, the plant uses this G-E 2400-volt Type MI-6 Metal-Clad switchgear, a co-ordinated, easily-installed unit, completely metal-enclosed for personnel safety. G-E Metal-Clad switchgear, in a wide range of ratings, contains incoming line and feeder breakers that insure adequate interrupting capacity.

3 This 7-panel G-E Limitamp high-voltage motor control line-up controls five 200-hp motors in the dry-grind tube mills and two 300-hp motors for the pulverizers. Elsewhere, a 750-kva G-E unit substation steps down 2400-volt power to 480 volts for small-motor and lighting use. G-E unit substations minimize voltage drop.



4 For emergencies, additional standby capacity is provided by two 375-kva diesel engine-driven G-E generators (one shown), each with a 5-kw exciter. Use of many thousand feet of G-E interlocked armor cable throughout the plant for power and control leads eliminated the need for costly conduit installations.

You can put your confidence in—

GENERAL ELECTRIC

658-2

MEDUSA INSTALLS NEW POWER PLANT-CUTS FUEL COST!

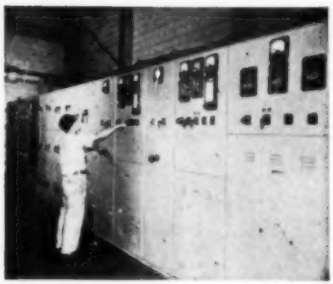
General Electric Turbine-Generator at Bay Bridge mill utilizes waste-heat steam more efficiently—eliminates coal-firing of two boilers—supplies power for five kilns and all other plant equipment on waste heat alone!

To reduce excessive operating and maintenance costs, the Medusa Portland Cement Company recently replaced the power generating system at its Bay Bridge, Ohio, plant with a completely new "packaged" General Electric system, including a turbine-generator and allied equipment.

Previously, four kilns and attendant equipment were powered by the old turbine using steam delivered by four boilers, two using waste heat and two coal-fired. Now, with the installation of the more efficient G-E turbine equipment, the entire plant operates on power generated from waste heat alone. Coal-fired boilers are eliminated, fuel costs are reduced!

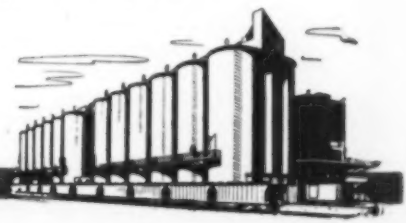
Complete with co-ordinated G-E equipment for power distribution and control, the Medusa installation is another example of how well a G-E "packaged" electrical system pays off.

You, too, can cut operating and maintenance costs all along the line by consulting an experienced G-E engineer on your electrical problems. *Apparatus Department, General Electric Company, Schenectady 5, N. Y.*



Another G-E switchgear unit combined with Cabinetrol® is used in conjunction with two standby generators as well as a bank of 1500-kva transformers. Combining simplicity and convenience, Cabinetrol centralizes in one location the control of a number of 15 to 50-hp motors that are used in the plant in crushing and grinding operations.

Now is the time—when you are in the planning stage for plant improvement—to call in a G-E specialist in cement mill electrification.



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where you want it

Equipment builders and users of industrial engines know that one of the most important keys to profitable operations is adequate and convenient service facilities.

Your product may be outstanding in design and performance, but if your owners have to search for service, wait long periods for replacement parts—you have a *real* problem on your hands.

When you specify Ford Industrial Engines as standard power for your equipment, you have your field service problem automatically solved. For Ford Industrial Engine Service is as near as the nearest Ford Dealer—clear around the world!

And that's just one of the 3 big reasons* why smart equipment builders know Ford Industrial Engines add a real profit-plus to their applications.

*** The other two? One—the *RIGHT* power; a choice of five great engines. Two—the *RIGHT* features—the latest developments of Ford's famed progressive engineering.**

★ **Ford "226" POWER UNIT**
6 cylinder, 226 cu. in. displacement
*
(Also available in open type power unit or engine assembly only)

Ford Industrial Engines are offered as complete power units, or as individual engine assemblies. Both are available with a wide variety of special attachments. They are made in the following types and sizes:

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★ 226 CU. IN. 6 CYLINDER
★ 254 CU. IN. 6 CYLINDER
★ 239 CU. IN. V-TYPE 8 CYLINDER
★ 337 CU. IN. V-TYPE 8 CYLINDER

For complete specifications, call or write

INDUSTRIAL ENGINE DEPARTMENT
Ford Motor Co., Dearborn, Mich.

Send me comprehensive literature about the new Ford Industrial Engine Power Units.

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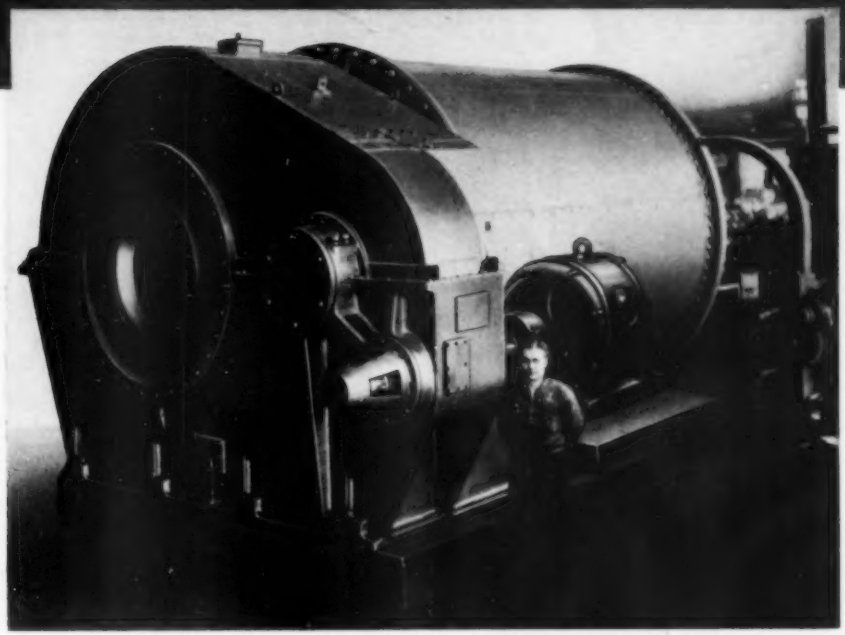
Industrial Engine Department
FORD MOTOR COMPANY
DEARBORN, MICHIGAN

YOUR JOB IS WELL-POWERED WHEN IT'S FORD-POWERED

IT COSTS *LESS* TO OWN THE BEST!



KENNEDY INTEGRAL GEAR DRIVE AIR SWEPT TUBE MILL . . .

BUILT-IN FEATURES OF KVS BALL MILLS

Integral Gear Drive connected directly to driving shaft

•

Shaft carried in roller bearings. Cannot be misaligned or set wrong

•

All Gears and Bearings automatically oil sprayed

•

Requires less power to drive

•

Mesh sizes readily adjusted

KVS Tube and Ball Mills are versatile. They can be used as a rod mill, tube mill for wet or dry grinding or for air sweeping. Built to LAST, they provide trouble-free service year-in, year-out.

Our records show that in 15 years no gears or pinions have ever worn out. Compare this service record with any other mill . . . judge for yourself the quality of materials and workmanship which goes into these fine machines.

Made in any length or diameter required according to YOUR needs and OUR rigid specifications. The experience of over fifty years is applied in building a mill that will provide maximum service at continued low operating cost.

Replace your obsolete equipment with mills that will quickly pay for themselves out of increased earning capacity. Long life assures liberal dividends from the investment and, when you specify KVS equipment "It Costs Less To Own The Best."

Send for bulletin describing, fully, all types of KVS mills

KENNEDY-VAN SAUN MFG. & ENG. CORPORATION

TWO PARK AVENUE, NEW YORK 16, N. Y.

Special Opportunity for SALES in May PIT and QUARRY

Tie your Sales Story to this Special Section

13th Annual LIME and AGRICULTURAL LIMESTONE SECTION

Send Reservation for Space TODAY— DEADLINE IS April 20th

1950 Section will be more helpful—all comprehensive

Your Advertisement Enjoys . . .

- Extra long sales-life
- Extra high readership
- Coverage of Top Buying Power
- Special editorial features condition the Advertising
- Printed on India Stock for quick, easy identification

Be represented with a striking Advertisement

This is the BIG issue PIT AND QUARRY readers look forward to with keen interest, because it contains editorial and advertising information vital to their business welfare,

Pit and Quarry has long recognized the great importance of the Lime and Agricultural Limestone Industries. And, the special section (printed on India stock) in the May issue, will be devoted to reports on the needs of different sections of the country—the problems and future opportunities of the Lime and Agricultural Limestone Industries. This issue is filed and referred to all year, thus giving your advertisement extra long sales-life.

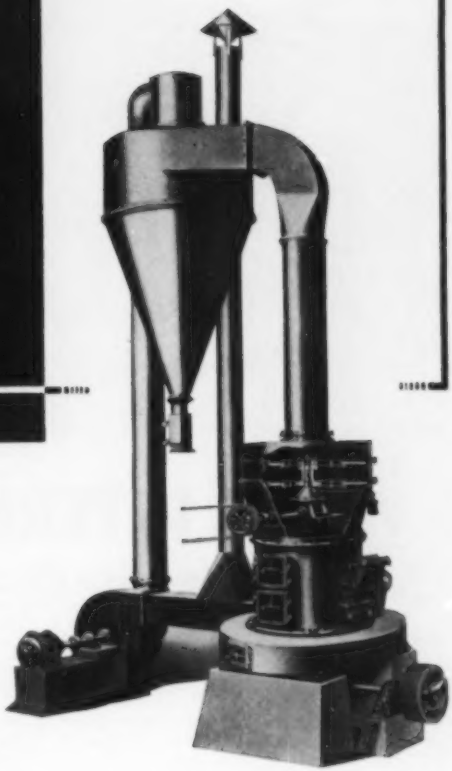
Limestone Plants need your Equipment—*RIGHT NOW*

The potential machinery and equipment market in this field is so large it defies even reasonable estimation. Hundreds of plants need your equipment for expansion and replacement. Here's a buying-market for crushers, screens, conveyors, kilns, hydrators, bag-packing machines, hammermills, limestone spreaders—just to mention a few. Your advertisement will be placed in the special section with the editorial content. Thus, the reader is editorially conditioned to your sales story. It's an opportunity to SELL and serve.

PIT and QUARRY
538 SOUTH CLARK ST. • CHICAGO 5, ILL.

ABC

How the Raymond HIGH SIDE ROLLER MILL Keeps Grinding-Costs DOWN ★



★ **MATERIAL HANDLED AUTOMATICALLY** from feed bin to finish bin in a single unit of equipment

★ **WIDE RANGE FINENESS CONTROL** with Whizzer Separator from 20-mesh to 325-mesh by one simple adjustment

★ **HIGH RATIO** of material ground to power consumed

★ **MILL OPERATES AT PEAK CAPACITY** by pneumatic feed control that maintains maximum "load" on mill

★ **FLASH DRYING SYSTEM** available for removing surface moisture from material while pulverizing

THIS whizzer type Raymond Roller Mill with its many automatic features and operating economies is favored by cost-conscious producers because it offers definitely proved savings for pulverizing non-metallic minerals.

The Raymond Roller Mill may well be the answer to your production problem. It finds wide application in the fine grinding field . . . on a great variety of products . . . for capacities up to thirty tons, or more, per hour . . . for finenesses up to 325-mesh or better . . . and a flexible system easily adapted to any plant layout.

For Complete Details, ask for Catalog No. 81.

COMBUSTION ENGINEERING—SUPERHEATER, INC.

RAYMOND PULVERIZER DIVISION

1321 North Branch Street, Chicago 22, Ill.

SINCE 1887

Whether you haul sand, rock, or coal . . .

NEW INTERNATIONAL TRUCKS

ARE *Heavy-Duty Engineered* TO SAVE YOU MONEY

Heavy-duty engineering for long truck life on tough truck jobs is yours now in every single new International Truck from 4,200 to 90,000 pounds GVW.

That's the same extra value engineering that has kept Internationals first in the sale of heavy-duty trucks for 18 straight years.

Cost-conscious, profit-minded heavy-duty truck users have preferred Internationals year after year for only one reason: heavy-duty engineering means that International Truck performance is longer life performance, lower operating and maintenance cost performance.

And now the same management, engineers, test experts, and production men who kept Internationals a tradition in the heavy-duty truck field have developed *every new International Truck*. No matter what size truck you use, there's a heavy-duty engineered International Truck that's right and ready for you!

You'll find new comfort in the new Comfo-Vision Cab

Model for model, here is "the roomiest cab on the road." It gives you new comfort in easy-riding cushions, adjustable seats, controlled ventilation. It gives you full front visibility through a one-piece, scientifically curved Sweepsight windshield.

And comfort is right at your fingertips when you take the sturdy wheel. The entire steering system is engineered for more positive control from a more comfortable position.

You'll get an all-new truck proved under actual operating conditions

"Proved under actual operating conditions" takes in years of time, millions of dollars, countless miles. But these new Internationals took in all those and then some—to give you proved-in-advance performance.

No matter what kinds of roads or loads, climate or conditions your trucks must meet, there's a new International that has been *proved* right for your requirements.

Find out all about that truck from your nearest International Truck Dealer or Branch, *soon*.

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McCormick Farm Equipment and Farmall Tractors
Motor Trucks . . . Industrial Power
Refrigerators and Freezers

Tune in James Melton and "Harvest of Stars"
NBC, Sunday afternoons

ALL NEW, ALL PROVED

INTERNATIONAL TRUCKS

INTERNATIONAL HARVESTER COMPANY CHICAGO

COLUMBIA ROCK PRODUCTS, Columbia, Tennessee, uses a Pioneer 30" x 42" Jaw Crusher as a primary breaker for its completely equipped Pioneer plant. This company produces road rock, ballast and agricultural limestone.

THIS NEW ORE WASHING PLANT, located on the Mesabi Range near Hibbing, Minnesota, uses a Pioneer 30" x 42" Jaw Crusher. This is only one of many Pioneer Jaw Crusher installations in the mines.

Gives larger rock a better break!

ARE you crushing limestone, flintrock, granite, or tough trap? There's a Pioneer Overhead Eccentric Jaw Crusher that will give your larger rocks a better break—deliver more tons per crusher dollar, with less maintenance per ton.

The huge opening on a Pioneer Jaw Crusher takes larger rocks with ease—saves man-hours and dynamite. For example, the Pioneer 30" x 42" Jaw Crusher operated by H. E. Sargent of Vasselboro, Maine, can handle the largest rock that will pass through the bucket of a two yard shovel. Sargent has crushed as much as 1600 tons in a 10 hour day!

Compared to other types of primary crushers of equal capacity, the Pioneer Overhead Eccentric Jaw Crusher sells for considerably less. In fact, dollar for dollar, a Pioneer Jaw Crusher outproduces any other type of primary crusher on the market today.

For more information on Pioneer crushing equipment, drop the coupon in the mail today. PIONEER ENGINEERING WORKS, 1515 Central Avenue, Minneapolis 13, Minnesota.

1. **OVERHEAD ECCENTRIC ACTION** forces material down and through as it is crushed, increasing capacity.
2. **EXCLUSIVE MOUNTING** places SKF bearings closer together than on any other anti-friction primary, reducing strain on the shaft.
3. **TOGGLE PLATE** holds lower end of the pitman at proper setting, and protects crusher from damage.
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6. **FULLY ENCLOSED, DUST-TIGHT MECHANISM** affords quick, easy adjustment without shutdown.
7. **JAW PLATES** of manganese steel—reversible and shaped for maximum capacity and wear.

BUY BOTH!

Higher Output, Lower Upkeep!

Pioneer

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- ☐ ROLL CRUSHERS
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Announcing...

The Amsco® Rever-SharP

The first important reversible dipper tooth improvement made in years!

it's new . . . A reversible, self-sharpening and self-hardening tooth.

it's economical . . . Improves digging efficiency. Lasts longer—with higher resistance to breakage. Tips made of Chromanal; Shanks and Adaptors of Manganese Steel.

FEATURES OF THE AMSCO REVER-SHARP THAT LOWER HANDLING COSTS PER TON

Reversible Tip—Simply turn the tip over when worn. A new, sharp cutting edge is ready for use. Made of Chromanal, the metal that actually work-hardens in service. *The harder you use the Rever-SharP, the harder it gets!*

Unique Cutting Edges—Increase service life and cutting efficiency from 50 to 200%. Reinforced and extended corners take initial impact and work-harden faster; wear is equalized along entire cutting edge.

Special Adaptor—Made of AMSCO Manganese Steel and designed so that extra metal protects base connections and lip from wear. Available to fit all base connections.

Reinforced Nose—Supported along entire length by extended ribs. Protects against bending or breakage. Tip is self-tightening as it is forced against the tapered nose during use.

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REVER-SHARP ALREADY IN USE—AND SERVICE-PROVED

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AMERICAN Brake Shoe COMPANY

AMERICAN MANGANESE STEEL DIVISION

396 EAST 14th STREET • CHICAGO HEIGHTS, ILL.

Flared sides of the rugged Euclid body speed loading by large shovels and reduce spillage. Smooth body interior, high dumping angle and distance of chute from rear wheels assure fast, clean dumping into hoppers or over the edge of stock piles and waste banks. The frame is a backbone of unmatched strength, built to last for the life of the unit.

● When this mid-western plant was completely modernized, Euclids were chosen to haul overburden and stone. Two Rear-Dump Euclids of 15 ton capacity replaced a fleet of highway trucks and easily handle the output of a 4 yard shovel. On a round trip haul of 3,000 feet, these quarry type "Eucs" average 131 trips every eight hours with capacity loads.

Dependable continuous performance of the Euclids assures a steady flow of limestone to the primary crusher. The low maintenance and operating cost of the "Eucs", as proved by company records, has reduced the cost per ton of material hauled.

If you want equipment to haul big loads fast and at low cost, the recommendations of a hauling equipment specialist are available without obligation. Write or call your Euclid distributor for complete information.

The EUCLID ROAD MACHINERY Co., Cleveland 17, Ohio

EUCLID

Move the Most

Vol. 42 APRIL 1950 No. 10

PIT AND QUARRY

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Quick Facts About A&S Expendable Pallets . . .

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2. You can unload car in fraction of regular time.
3. No upcharge to you for palletized shipment.
4. All bags laid flat—not folded.
5. Standard pallet size is 48" x 48", about 1500—2000 bags per pallet.
6. Cores alongside fork openings prevent blocking of fork entrance in shipment.
7. All-over wrapping gives bags greater protection.
8. Regular fork trucks can handle pallets, tunnels are 26" apart.
9. Strong car bracing prevents shifting of pallets in transit.

HERE'S the most modern and up-to-date expendable pallet used by the multiwall bag industry. This expendable pallet was designed and developed by A&S, and patent applications have been filed to cover its unique features.

Packed under pressure, the compact, square bag unit is completely wrapped and then strapped to the A&S Expendable pallet. Already, A&S customers are reporting noticeable savings in their bag handling and storage costs. Follow these leaders and put to profitable use the "plus" packaging features being developed in the A&S Packaging Laboratories.

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editorial

War-Time Excess Profits

IN an excess profits tax case of great importance to all natural resource industries the United States Court of Appeals for the Fifth Circuit on March 16, 1950, affirmed the decision of the Tax Court of the United States in the case of *Commissioner of Internal Revenue vs. Gifford-Hill & Company, Inc.*, 11T. C. 802. The case involved sand and gravel mining operations conducted during the tax years 1942 and 1943 at Texarkana and Hearne, Tex., and Turkey Creek, La., by the defendant. Quoting the Circuit Court's decision, "The question in the case here involves assessed deficiencies in excess profits taxes for the years 1942 and 1943, the solution to which must be found in the interpretation to be given subsection 735 (a) (6) of the Internal Revenue Code as applied to subsection 711 (a) (1) (I) and subsection 711 (a) (2) (K), and whether or not subsection 35.735.2(f) of the treasury Regulations in undertaking to define the term 'mineral property' was in conformity to subsection 735(a) (6) and, therefore, applicable, or whether out of conformity and, therefore, void.

"The Tax Court, in an opinion reported at 11 T. C. 802 (reviewed by the whole Court), held that the regulation defining a mineral deposit did not follow, and correctly interpret, the language of the statute and was, therefore, invalid.

"Section 735, subsections (a) (6) and (a) (7), are as follows:

'(6) Mineral Property—The term "mineral property" means a mineral deposit, the development and plant necessary for the extraction of the deposit, and so much of the surface of the land as is necessary for the purposes of extraction.

'(7) Minerals—The term "minerals" means . . . such nonmetallic substances as . . . gravel . . . sand.'

"The regulation in question is as follows:

'(f) Mineral property—The term "mineral property" means a mineral deposit, the development and plant necessary for the extraction of the deposit, and so much of the surface of the land as is necessary for the purposes of such extraction. The term "mineral deposit" refers to the minerals in place. The taxpayer's interest in each separate mineral property is a separate "property." If the mineral deposit in which a taxpayer owns an economic interest extends beyond the boundaries of a single tract or parcel of land a separate mineral property exists with respect to each tract or parcel of land into which the mineral deposit extends. Where two or more mineral properties are included in a single tract or parcel of land, the taxpayer's interest in such mineral properties may be considered to be a single "property," provided such treatment is consistently followed.'

"In the final analysis the issue for our decision is whether or not The Tax Court erred in holding void, as applied to the taxpayer, the aforementioned regulation which undertook to define a 'mineral property' as 'each tract or parcel of land into which the mineral deposit extends."

In the Gifford-Hill case the defendant contended that the regulations are invalid and beyond the power of the Commissioner to promulgate. Both the Tax Court and the Court of Appeals have upheld this contention.

AGAIN quoting the Circuit Court, "The answer to this question has a vital relation to excess profits tax because Congress, in order to increase the war-time production of essential minerals—particularly sand and gravel which were needed in great quantities for concrete construction in paving roads and runways and building foundations, etc.—provided an exemption from taxes of the percentage that the excess output of any such 'mineral property' in the tax year over the output of base period of such mineral property bore to the estimated recoverable units from such property.

"We have been cited to no adjudicated case in the Federal Courts that is decisive of the question here involved. In the tax years the mineral units recovered from the three mineral deposits worked by the taxpayer exceeded the average annual mineral units recovered during the base period, and it is entitled to exclude the net income realized from this exempt excess output in those years in determining the excess profits net income for those years.

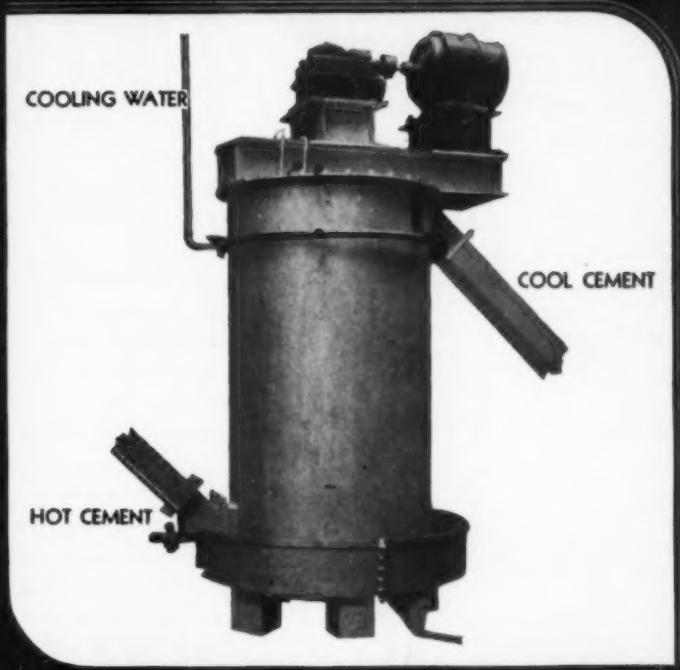
"We agree with the Tax Court that Section 735 was enacted for the purpose of stimulating the production of sand and gravel, along with other minerals, in order to aid in the prosecution of war, by providing that a substantial portion of the income realized as a result of any excess output might be excluded from excess profits net income.

"We further agree with The Tax Court that in the mining of sand and gravel under the circumstances involved in this case a mineral deposit in a single tract of land did not constitute mineral property within the terms of the statute. Encompassed in the statutory term 'mineral property' there must be included 'a mineral deposit, the development and plant necessary for the extraction of the deposit, and so much of the surface of the land as is necessary for purposes of extraction.' Due to the fact that extensive and expensive equipment are essential to the taking out and development of the mineral deposit, and to the fact that the deposits were shown in the present case not to be coterminous with the boundaries of any single tract of land, and to the fact that there would, in prudent operation, never be a development of a sand and gravel deposit so small as to be unprofitable, we conclude that The Tax Court correctly held that the regulation was contrary to the statute and that the term 'mineral property' should not be applied in the taxpayer's mining operation to each single tract of land but to the development or operation as a whole.

"The decision of The Tax Court is AFFIRMED."

Walter E. Trauffer

FOR COOLING HOT CEMENT



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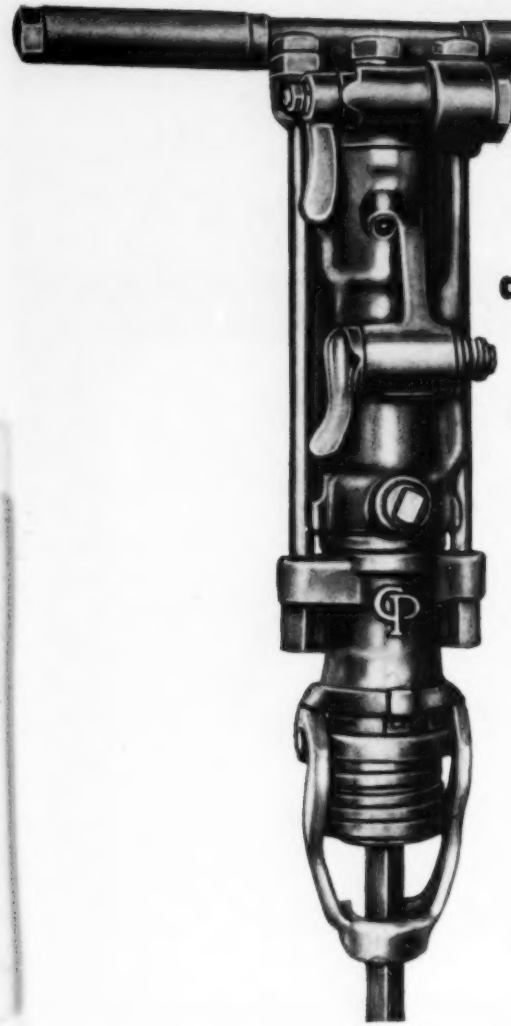

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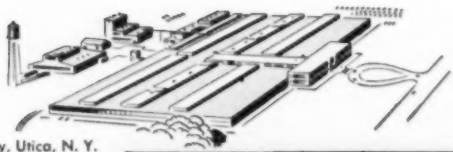

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news of the industry

PIT AND QUARRY

Alaskan Waterfront Site Leased by Permanente For Distribution Plant

W. A. Marsh, general manager of Permanente Cement Company, recently announced that a lease had been signed between the Alaska Railroad and Permanente Cement Company on a section of waterfront property in Anchorage, Alaska, for the purpose of erecting a cement distribution plant to serve the rail belt area of the peninsula.

The facilities, which will include bulk storage silos, sacking machinery and dockage, will be designed to permit the most efficient handling of overseas shipments of bulk cement.

Permanente's bulk cement carrier, the *S. S. Permanente Silverbow*, has been pressed into full-time service to supply increased demands in the Northwest, including the company's facilities at Portland and Seattle, as well as the additional requirements necessary for the proposed Alaskan facilities.

By providing cement storage facilities at Anchorage and at other points as demand warrants, Permanente will be able to give improved service to the Alaska construction industry.

$225,000 Plant Equipment Set Up in Old Macon Quarry

Operations began on schedule on February 1 at the newly-reopened quarry on the Georgia Industrial Home property near Macon, Ga. Workmen of the Macon Stone Company, which has leased the site from the institution, once more were busy about the old quarry, which had been closed for several years.

According to W. W. Williams, head of the concern, equipment worth $225,000 has been put in motion to remove and process the stone. Mr. Williams previously operated quarries in the Carolinas and in Virginia.

Canada Cement Co. Head Predicts Drop in Demand

With plants operating at full capacity, no difficulty is anticipated in meeting all demands for cement during 1950, J. M. Breen, president and general manager, told those attending the annual meeting of the Canada Cement Company at Montreal.

Some falling-off in demand for cement must be expected this year, following the extraordinarily high construction activity of recent years, Mr. Breen stated. "For example," he said, "the requirements of cement for power development work in 1950 will be roughly a million barrels less than in 1949, and competent authorities estimate there will be a drop of about 10 percent in house building this year."

Oklahoma Operator Expects No Shortage of Limestone

Near Cooperton, Okla., George L. Poynter is setting up a $100,000 crushing plant to process limestone which he found in a search for a local source of supply. At the site of the plant, which is scheduled to open in the immediate future, Mr. Poynter found a supply of suitable rock so abundant that he does not expect to survive the exhaustion of the deposit. He estimates the content at 5,000,000 tons.

According to Mr. Poynter, the material is the only stone in the state which will meet the tests for filter rock in sewage disposal plants. Production at first will be on an 8-hour basis, with a 24-hour schedule to follow when warranted by demand.

Louis R. Myers, William Clark, and W. H. Jewell are the incorporators of the Arkansas Limestone Company of Batesville, having filed articles of incorporation there on February 1. The firm will immediately take over the Myersville operation of the Batesville White Lime Company.

Coming Events

May 11-13, 1950—Hot Springs, Va. Annual spring convention, National Lime Association, The Homestead.

Col. Needles Re-Elected President of A.R.B.A. At 47th Annual Meeting

Thirteen officers and directors were elected on March 9 to lead America's oldest national good roads organization at the closing sessions of the 47th annual meeting of American Road Builders' Association here today. At the same time, officers of A.R.B.A.'s several divisions were named. More than 1500 leaders of the highway industry and profession attended the four-day meeting.

Named president of A.R.B.A. for a second term was Col. Enoch R. Needles, Summit, N. J., of the New York and Kansas City consulting engineering firm of Howard, Needles, Tammen and Bergendoff.

Serving with him as district vice-presidents will be Paul B. Reinhold, president of Atlas Equipment Co., Pittsburgh, Pa., for the northeastern district; Charles W. Smith, president of Smith Engineering and Construction Co., Pensacola, Fla., southern district; W. A. Roberts, executive vice-president of Allis-Chalmers Mfg. Co., Milwaukee, Wis., central district; and T. E. Stanton, materials and research engineer of the California Department of Public Works, Sacramento, Calif., western district. Jennings Randolph, assistant to the president of Capital Airlines, Inc., Washington, D. C., and former West Virginia congressman, was renamed treasurer.

Southern Cement Makers Meet at Birmingham, Ala.

The third of 21 regional meetings at which 143 portland cement plants of the United States and Canada are being represented was held on February 14 at the Tutwiler Hotel in Birmingham, Ala. More than 50 men from mills and quarries in Alabama and Louisiana were in attendance.

Serving as general chairman of the meeting was Henry Burks, manager of the Lehigh Portland Cement Company's Birmingham plant. V. E. Wessels, manager of the Mobile plant, Alabama Division of the Ideal Cement Company, presided at the conference luncheon. The series of regional meetings is being sponsored by the Portland Cement Association.

January-February Total Of Building Contracts Tops '49 by $1,510,385,000

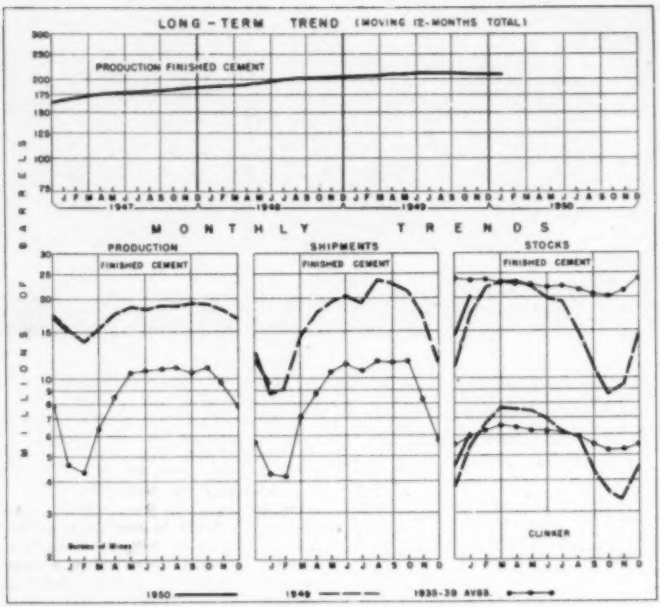
Contracts awarded for building and heavy engineering works in the 37 states east of the Rocky Mountains in February totaled $779,530,000, showing an increase of 7 percent over January, 1950, and a 37 percent rise over February, 1949, it was reported by F. W. Dodge Corporation. All classifications, residential, nonresidential and heavy construction were greater in February than in the preceding month. Only heavy construction fell behind, as compared with February, 1949.

The two month's construction total for this year was $1,510,385,000 an increase of 44 percent over the total for the 1949 January and February aggregate.

Residential projects amounted to $361,452,000 in February, of which $342,341,000 was private building and $19,111,000 public building. One- and two-family dwellings made up $279,122,000 of February's operations, and apartment buildings $75,138,000. Residential contract awards last month were 5 percent above January, 1950, and 87 percent better than February, 1949.

Respective gains of 13 and 20 percent were noted in the non-residential field last month over the first month of this year and the February, 1949, total. Leading February's nonresidential projects were hospital buildings, for a total amount of $66,949,000. Hospital projects were 141 percent ahead of January, 1950, and 112 percent more than in February, last year. Other public and institutional contract awards were also up, as compared with the figures for February, 1949.

Comparison of heavy construction works for the 37 states east of the Rocky Mountains shows a 19 percent rise for the first two months of this year over the corresponding months of last year. February's total of $152,511,000, however, was less than 1 percent over January, 1950's total of $152,060,000, and only about 1 percent less than the February, 1949, figure of $153,499,000.



SUMMARY—The production of 15,174,000 barrels of portland cement during January, 1950, as reported to the U. S. Bureau of Mines, decreased 1 percent, as compared with the output in January, 1949. Mill shipments totaled 9,593,000 barrels—an increase of 10 percent over the January, 1949, figure, while stocks of 20,267,000 barrels were 15 percent greater than the total for the same month of 1949. Clinker production during January, 1950, amounted to 16,770,000—a decrease of 1 percent as compared with the corresponding month of the previous year.

PRODUCTION—The production of 15,174,000 barrels of finished cement in January, 1950, came from 146 plants located in 35 states and in Puerto Rico. During the same month of the preceding year 15,261,000 barrels were produced from 146 plants. Clinker production decreased 1 percent as compared with the January, 1949, total.

SHIPMENTS—Mill shipments of 9,593,000 barrels were 10 percent greater than the January, 1949, total. The demand for cement, as indicated by mill shipments, declined when compared with the previous month (December, 1949)—11,606,000 barrels. Shipments of cement were greater in 11 districts and lower in 8 districts than those reported in January, 1949. The changes range from a decrease of 63 percent in the Oregon-Washington district to an increase of 107 percent in the Kansas district. A decrease of 2 percent was noted in the Puerto Rican district.

STOCKS—Finished cement stocks of 20,267,000 barrels on January 31, 1950, were 15 percent above the January, 1949, figure, while clinker stocks as of the same date amounted to 6,103,000 barrels—an increase of 11 percent.

C.I.M.A. Holds Joint Meeting With A.R.B.A. at Cincinnati

The Construction Industry Manufacturers Association, an organization of the manufacturers and producers of construction equipment, supplies, components, materials and publications, held its annual meeting at Cincinnati, O., on March 8 in conjunction with the annual meeting of the American Road Builders' Association. Seven new directors of CIMA were elected: Leonard C. Beck, vice-president, Cummins Engine Company; C. Findley Boyd, vice-president, Galion Iron Works & Mfg. Company; E. B. Hill, vice-president and general manager, Road Machinery Div., Gar Wood Industries, Inc.; Kenneth Lindsay, vice-president, Iowa Manufacturing Company; F. Salditt, vice-president, Harnischfeger Corporation; and Julien R. Steelman, vice-president, Koehring Company.

Other directors still on the C.I.M.A. board who continue to serve are the following: P. H. Birckhead, Bucyrus-Erie Company; B. F. Devine, Chain Belt Company; Arthur A. Levison, Blaw-Knox Division, Blaw-Knox Company; Francis H. Moline, Pacific Car and Foundry Company; Henry N. Schramm, Schramm, Inc.; Ralph K. Stiles, Austin Western Company; J. T. Callaway, The Goodyear Tire & Rubber Company, Inc.; Carleton R. Dodge, Northwest Engineering Company; Henry C. Isaacson, Isaacson Iron Works, Inc.; Ray McLean, The Jaeger Machine Corporation; W. E. Miles, The Oliver Corporation; and G. H. Olson, Link-Belt Speeder Corporation.

The directors selected the following slate of officers for 1950: President, Ralph K. Stiles, Austin Western Company; first vice-president, William E. Miles, The Oliver Corporation; second vice-president, B. F. Devine, Chain Belt Company; secretary-treasurer, Julien R. Steelman, Koehring Company; and executive vice-president, Harold F. Hess.

The board also appointed G. A. Gilbertson, vice-president of the Frank G. Hough Manufacturing Company and W. B. Greene of Barber-Greene Company to fill vacancies on the board.

In addition to its own varied activities, C.I.M.A. serves as the Manufacturers' Division of the America: Road Builders' Association and as the Construction Industry Division of the International Road Federation.

Electricians at the Lone Star Cement Company's Dallas, Tex., plant on February 25 chose the A.F.L. Electricians' Union as their bargaining agent over a rival C.I.O. union. It was announced that if no protests were registered, the National Labor Relations Board would certify the A.F.L. union as bargaining agent.

Couse Named President At 31st Convention Of A.G.C. in San Francisco

The construction industry was given a picture of cautious optimism for the immediate future, against a backdrop of distinct warning signals now appearing in the national economy, at the thirty-first annual convention of The Associated General Contractors of America on February 27-March 2, at the Palace Hotel in San Francisco.

The convention had a record-breaking attendance of approximately 1,500 representatives of the more than 5,500 members of the association, representing leading construction firms throughout the United States and Alaska, and others associated with the industry.

Faced with rapidly changing conditions during the past year, which have brought the strongest competition in the industry since the middle 1930's, the general contractors probed into the possibilities of making 1950 another record-breaking year in construction volume.

Walter L. Couse, president of Walter L. Couse & Co., Detroit, Mich., was installed as president, succeeding Adolph Teichert Jr. of A. Teichert & Son, Inc., Sacramento, Calif. Glenway W. Maxon, of the Maxon Construction Co., Dayton, O., succeeded Mr. Couse as vice-president. Past President William Muirhead, Durham, N. C., was re-elected secretary-treasurer. H. E. Foreman, Washington, D. C., is managing director.

Managing Director Foreman, in his annual report, cited the A.G.C.'s "strongest condition is history", and reported a total of 5,511 memberships, a net gain of 502 during 1948, and a total gain of 2,350 during the last five years. He said there are reasons why an annual $30,000,000,000 total volume of construction—two-thirds of it new work—can be sustained for the next few years, although such expectations should be tempered with the recognition that international or national developments could seriously affect the nation economically.

Business as Usual at Smoot—After 5-Month "Vacation"

As tugs and barges of the Smoot Sand & Gravel Corporation moved on February 6, Washington's longest building industry strike came to an end. For the first time since August 28, 1949, the big sand-and-gravel concern again is furnishing its products to the Potomac valley.

Hostilities ceased when an agreement was signed between the management and the A.F.L. Operating Engineers' Local 77 and the Teamsters' Union Local 639. The company agreed to finance a 3 percent health, welfare, and insurance fund for the employees. Wages remained the same, but the firm agreed to pay a cost-of-living bonus in April and a second bonus in July, 1951, if there have been further price increases. In addition, the company promised to hire its employees on a year-round basis and to adjust some inequities in pay classifications. The new contract will run until August 29, 1951.

• Loading operations at the plant of Vermont Mineral Products, Inc., near Chester, Vt., are accomplished by this "Caterpillar" diesel D6 tractor teamed with a Trackson Traxcavator. Here talcum rock is being loaded for crushing. Stanley F. Dorand is president and manager.

P. D. Hermann Successor to F. G. Knight in A.E.D. Post

The resignation of Frank G. Knight, executive secretary of Associated Equipment Distributors, and the appointment of P. D. Hermann as his successor were recently announced by C. F. Halladay of Sioux Falls, 1950 president of A. E. D.

Mr. Knight became executive secretary when the A. E. D. national headquarters were moved from Washington, D. C., to Chicago in 1947. He will become executive assistant in the Bemiss Equipment Corporation, Richmond, Va., but until April 1 will remain with A. E. D. in a consulting capacity.

Succeeding him as executive secretary, Mr. Hermann has been closely identified with many of A. E. D.'s major activities since joining the executive office staff in March, 1948, as administrative assistant. During the last year he has served as editor of the association's official monthly publication, *Construction Equipment News*.

P. D. Hermann

Pit Sand Slide Claims Life Of California Superintendent

On February 18, workmen at the Chandler Sand and Gravel Company's plant at Lomita, Calif., recovered the body of Lester Newton, superintendent, 22 hours after he had been caught in an avalanche of hundreds of tons of sand. Mr. Newton and two other employees of the firm were preparing to plant 144 sticks of dynamite, when a ledge gave way and fell upon him. The other two men succeeded in escaping.

Added to the danger of starting other slides during the rescue work was the possibility that the dynamite, buried with Mr. Newton, would be exploded. The men disregarded this hazard and dug with bulldozers and dragline shovels until they had uncovered the body. The location of the victim was determined by means of an electronic pipe detector which indicated the presence of the metal tools Mr. Newton had with him when he was trapped. The dynamite was not immediately removed.

Calaveras White Cement Boon to Western Builders

Officials of the Calaveras Cement Company have announced that the firm will soon introduce a white portland cement, a move which is expected to effect considerable freight savings for builders and contractors in the West Coast and mountain states.

Calaveras is said to be one of four firms in the United States, and the only one in the West, with quarry resources and plant facilities for the production of white cement.

• On the slagline run at Lordstown, Ohio.

Maryland Slag Co. Converts To Diesel-Electric Locomotives

Three years ago the Maryland Slag Company of Baltimore, Md., purchased a General Electric 65-ton diesel-electric locomotive for hauling slag. Two years later, pleased with the operation and savings effected by this unit, the company bought two more similar industrial locomotives. The conversion from steam power is being made complete with the purchase of an 80-ton G-E locomotive for the company's Lordstown, O., plant.

The G-E units haul slag from the dump pits directly into the crushing mills. Each locomotive averages 16 hauls of slag daily, with five cars each time. Each carload of slag weighs approximately 33 tons.

Kelley Island Lime & Transport Records Its 116-Year History

It may not be hair-raising reading matter, but the 1949 report of the Kelley Island Lime & Transport Company of Cleveland, O., which traces the history of the firm from 1833, is not dull reading.

According to President Ralph L. Dickey, it was in 1833 that the Kelleys, Lrad and Datus, bought a portion of what was then known as Cunningham's Island in Lake Erie. A few years later the property became Kelley's Island when the brothers acquired the rest of the island. In 1834 they began shipping limestone from their island quarry. When Norman Kelley came along, he started shipping "waste" spalls to Cleveland for flux in smelting iron ore, and soon spalls became the principal product of the Kelley's Island quarries.

Today the firm, an outgrowth of the Kelley Island Quarry & Lime Company, has a working capital of $3,391,000. In 1949 the concern reported a net profit of $922,902; in 1948 the figure stood at $779,496.

$300,000 Plant to Be Opened This Summer Near Batesville

Operation of the new White River Limestone Products Company at Penter's Bluff, 16 miles west of Batesville, Ark., is scheduled to begin early this summer, according to an announcement released by Executive Director Wayne Fletcher of the Arkansas Resources and Development Commission.

Approximately 40 persons will be employed at the $300,000 plant, which will have an estimated output of 2,000 tons daily. Products will include chemical limestone, aggregate, and agricultural limestone. Howard Millar of Little Rock heads the new firm.

W. E. McCourt & Associates Buy Greenville, Tenn., Plant

Transfer of the physical assets of the Greenville Sand and Gravel Company, Greenville, Tenn., from Lee McCourt, former owner, to W. E. McCourt and Associates by purchase was announced recently. The latter group has formed the Greenville Gravel Company.

Liquid assets of the firm were retained by the Fischer Lime and Cement Company, Memphis, Tenn., of which Lee McCourt is chairman. It was indicated that the Greenville Sand and Gravel Company will become a holding company.

W. E. McCourt has been in charge of the company at Greenville for many years for Fischer Lime and Cement.

California Perlite Concern Bothered with Growing Pains

Production at the American Perlite Corporation's plant in Richmond, Calif., one of the newest industries in the area, has encountered a serious obstacle, for it is beset with growing pains. The increasing demand for perlite has made additional space, workers and equipment imperative.

C. W. Millen, manager of the plant, stated that a second shift has been added, new equipment has been ordered, and larger quarters are being sought. Recently one order was filled for 15,000 bags of perlite for a San Francisco construction project.

Volcanic Material of Desert Processed for Aggregates

Volcanic cinders are being excavated and processed for lightweight aggregates on a relatively large scale near Little Lake, Calif., just north of the Mojave Desert. Two operators are currently in production, the Redlite Aggregate Co., Inc., and the Volcanic Cinder Co. The material is red to violet in color.

An estimated 11,000,000 tons have been mapped out in the flats surrounding an extinct volcanic cone which produced the lava flow in prehistoric times. Most of the output is being shipped by trucks to concrete-block plants in California, and some has been used in monolithic concrete.

Big Rock Stone & Materials Given 5000-Carload Order For Sulphur River Dam

Near Little Rock, Ark., the Big Rock Stone & Material Company recently acquired title to 450 acres on the north half of Allis Mountain, a local source of Arkansas blue granite.

Almost simultaneously the Corps of Engineers announced that an earthen dam would be built across the Sulphur River, 10 miles west of Texarkana, and soon thereafter Big Rock was awarded an order for 5,000 carloads of blue granite for the facing of the dam.

The company brought in $100,000 worth of new equipment and put 40 men to work on the project. It is expected that it will take all year to fill the order. Big Rock is putting in 1600 ft. of railroad track between the Arch Street Pike and the newly opened quarry.

According to Snow Wilson Sr., president of Big Rock, the blue granite has been core-drilled and tested to a depth of 500 ft.

1949 Totals Show Increase In Cement Sales, Earnings

Records are in for a number of the major cement manufacturing companies for the 12-month period just ended. Rising trends indicated in earlier reports were continued during the last few months of the year. General Portland Cement Company net earnings totaled $5,240,000, as compared with $4,273,000 for 1948. Sales increased from $19,491,000 (1948) to $21,285,300 (1949).

Lone Star Cement Corporation officials indicated the year's new profit at $9,892,292; last year's total was $7,755,541. In 1948 sales stood at $54,575,705; in 1949 sales rose to $63,965,845.

Permanente Cement Company directors indicated that the year ended January 30 would show total sales and net profits higher than in any previous year. They stated that the outlook for 1950 and 1951 was definitely good.

Final figures on earnings of Canada Cement Co., Ltd., for the fiscal year ended November 30, 1949, showed a net profit of $4,820,196, as compared with $3,727,566 in the preceding 12-month period.

Petoskey Portland Cement Company reported a net income of $300,696 on net sales of $3,667,360, as compared with $200,792 on net sales of $3,378,718 in 1948.

Total 1949 Output, Sales Freeport Sulphur's Greatest

Net earnings of the Freeport Sulphur Company for 1949 after all charges including depreciation, depletion and income taxes were $5,902,314, or $7.38 per share. Earnings for 1948 were $4,338,089, or $5.42 per share.

Production of sulphur and gross sales were the largest in the company's history, according to company officials.

Kiln Installation Completed At Gabbs, Nevada, Plant Of Basic Refractories

Installation has been completed by Basic Refractories Company of a 9- by 350-ft. rotary kiln at its Gabbs, Nev., plant, and production has begun on calcined magnesite and brucite for shipment throughout the nation.

The kiln was used during the war in the government-owned aluminum plant at Baton Rouge, La.

For the last 15 years, the company has been working the deposit, crushing the material and shipping it to its Maple Grove, O., plant for further processing. Additional land and equipment was acquired about a year ago when Basic Refractories bought from the War Assets Administration the plant and properties formerly operated by Basic Magnesium.

Vital Trace Elements Sought To Improve Soil and Diet

By checking soil and plants for infinitely small amounts of minerals, scientists expect to put more nourishing steaks on your table.

Studies of corn samples at Armour Research Foundation of Illinois Institute of Technology form a part of the International Harvester Company's search for the essential elements which will lead to a better diet.

"Ordinary fertilizers which feed phosphorus, potassium, and calcium to the soil have been found wanting," explained Arthur J. Mitteldorf, associate physicist at the foundation. "The soil also needs replacements for incredibly small amounts—mere traces—of such elements as cobalt, molybdenum, manganese, etc."

One of these "trace" elements which exist in such minute quantities that they must be measured in parts per million or less is cobalt, which was recently discovered to be present in the molecule of Vitamin B-12.

Lime Quarry, Plant Methods of Nevada Firm Described

Quarrying methods and crushing practices at two quarries, together with calcining and milling operations at two plants of the U. S. Lime Products Corp., in Clark County, Nevada, are described in a U. S. Bureau of Mines report of special interest to the limestone and quarrying industries.

A free copy of the publication, Information Circular 7517, *Quarrying Methods and Practices, U. S. Lime Products Corp., Clark County, Nev.*, may be obtained by writing to the Bureau of Mines, Publications Distribution Section, 4800 Forbes Street, Pittsburgh 13, Pa.

Mathieson Chemical Corp. Sales, and Earnings Rise

In the Mathieson Chemical Corporation's books, both net sales and net income rose sharply from the 1948 figures, as 1949 totals were entered. Net sales in 1948 (year ended December 31) stood at $31,934,720; a year later the total was $54,073,351. Net income for 1948 was $4,822,812; in 1949 income had risen to $6,991,012.

The 1949 report includes earnings from the properties of the Standard Wholesale Phosphate and Acid Works, Inc., and the Southern Acid and Sulphur Co., Inc., but only from the date of acquisition of the properties on April 1, 1949.

First World Trade Fair Comes to Chicago in August

The eyes of business and industry throughout the world will be turned to Chicago this year with the opening of the First United States International Trade Fair, the first international exposition for industry and commerce ever staged in this country.

Aided by the U. S. Department of Commerce, the fair has received the nod from ECA, OEEC, the International Chamber of Commerce and other important groups. The purpose of the fair, which is scheduled for Chicago, August 7-19, 1950, is to provide an economical and productive medium for the sellers of the world's goods to open the American market.

However, the fair is not simply a market place for foreign goods. American manufacturers are participating, and foreign buyers will be on hand. A ratio of one-third American exhibitors to two-thirds exhibitors from the rest of the world has been set by fair officials.

• Seen in this illustration is an electrically-powered crawler-type shovel which handles hot slag at the operation of the Duquesne Slag Products Company near Pittsburgh, Pa. The operator of this shovel is protected from excessive heat and fumes common to such operations by an air-conditioning unit mounted on the cab. This cooling equipment, a development of the Dravo Corporation, supplies the cab with 400 cu. ft. of conditioned air per minute, holding inside temperature at approximately 80 deg. F. The shovel operates in parallel trenches 600 ft. long into which molten slag is poured at 2800 deg. F. Air drawn into the unit is filtered and passed through fume-removing chemical canisters. The refrigeration mechanism uses Freon-114. No water is needed.

"Off Again" Order Closes Mill of Ideal Cement Co. Second Time in 7 Months

Operation of Ideal Cement Company's $7,500,000 plant at Devil's Slide, Utah, was recently suspended for the second time in seven months. Orders for the shut-down were received from the main office in Denver, according to A. W. Hooton, superintendent. Reason: storage facilities were loaded to capacity.

It was indicated by Harry B. Roberts, sales manager at Salt Lake City, that the stoppage would probably be only temporary, as was the case last August. The new facilities were opened on November 3, 1948, with a capacity of more than 2,000,000 bbls. annually.

Canadian Nonmetals Output For 1948 Summarized

According to preliminary figures, the production in 1948 by Canadian manufacturing industries which used nonmetallic minerals as their principal materials amounted to $708,400,000 at factory prices, an increase of 28.6 percent over the corresponding 1947 value of $550,800,000. A gain of $110,000,000 in the petroleum products industry accounted for a large part of this advance.

In 1948 the number of operating factories in this group was 1,037, distributed by provinces as follows: Ontario, 493; Quebec, 266; British Columbia, 72; Alberta, 65; Manitoba, 48; Saskatchewan, 36; New Brunswick, 26; Nova Scotia, 28; Prince Edward Island, 2; and the Northwest Territories, 1. The number of employees increased to 40,092 from 38,606 in 1947, and payments for salaries and wages rose to $92,000,000 as against $78,100,000. Materials for manufacturing cost $436,200,000 in 1948 and fuel and electricity cost $48,500,000.

All but one of the industries in this group showed increases in output values in 1948 as compared with 1947. The percentage gains were as follows: abrasive products, 5.5; cement products, 35.5; coke and gas, 23.8; cement, 29.6; products from Canadian clays, 18.0; products from imported clays, 25.6; glass, 11.1; stone products, 24.9; gypsum products, 27.6; lime, 25.1; sand-lime brick, 74.3; salt, 7.0; petroleum products, 39.4; and asbestos products 33.4. Output from the miscellaneous group declined 15.0 percent.

Imports into Canada of nonmetallic minerals and their products totalled $606,000,000 in 1948, as compared with $452,000,000 in 1947. Exports of Canadian produce were appraised at $95,000,000 during 1948, as against $75,000,000 in the previous year.

Stockholders of the Texas Lightweight Aggregate Company, Dallas, Tex., received a 10 percent stock dividend on January 15. C. L. Moruzzi, president, stated that sales in 1949 were in excess of the figure for 1948.

Mines Bureau Investigation On 33 Strategic Minerals Announced by Chapman

More than 10,000 investigations of domestic deposits of 33 different minerals have been made by the U. S. Bureau of Mines during the last 10 years under a broad strategic minerals development program which charted and developed new reserves for war and peacetime use, according to Secretary of the Interior Oscar L. Chapman. About 1,300 projects in 48 states and Alaska, costing more than $29,000,000, were completed during 1939-1949, he stated.

Conducted by the Bureau of Mines in cooperation with the U. S. Geological Survey, this program made available for wartime use substantial supplies of aluminum, barite, celestite, mercury, tungsten and vanadium, Secretary Chapman pointed out. On a lesser scale, new reserves of antimony, asbestos, chromite, copper, graphite, iron, fluorspar, lead, talc, manganese, and zinc were made available, as well as pegmatite ores containing mica, beryl and other minerals.

The investigations were concerned mainly with ore deposits too low in grade to be profitable in normal times, but suitable for use in case of an emergency, James Boyd, Mines Bureau director, stated. This long-range objective of establishing "underground stock piles" was superseded temporarily early in the program by the immediate one of stepping up mineral production for war industries. Because of acute mineral shortages, production followed closely upon exploration in some cases, he added. At present, industry is actively developing or exploiting deposits of 14 of the commodities investigated.

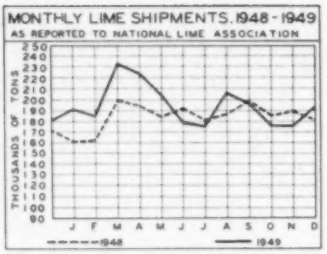
The report is contained in a bulletin (No. 4647) entitled *Bureau of Mines Strategic Minerals Development Program, Summary of Progress, 1939-1949*, which may be obtained from the Bureau of Mines Publication Section, 4800 Forbes Street, Pittsburgh 13, Pa.

N.I.S.A. Meeting Postponed One Week to May 17-19

Because the dates originally selected for the annual meeting of the National Industrial Sand Association (May 10-12) conflicted with the dates of the American Foundrymen's Association's meeting in Cleveland, it was decided to change the schedule. The convention, which will be held at The Homestead, Hot Springs, Va., will open officially on May 17 and run through May 19.

Announcement of the postponement was made by Stanton Walker.

In a move to supplement the limestone production of its Bridgeport (Pa.) quarry, the Bethlehem Steel Company recently purchased or acquired options to purchase parcels of land totalling approximately 325 acres in Chester County. The tract is located near the Cedar Hollow quarry of The Warner Company.



According to data collected by the National Lime Association, 49 companies in December, 1949, shipped 193,096 tons of lime (133,224 quicklime; 59,872 hydrate). Reporting companies represent 59.1 percent of the association members' total capacity of record. Based on Pit and Quarry's estimate for the remainder of the industry, the total shipments were approximately 359,400 tons. Shipments by uses and grades for December, 1949, were:

	Quicklime (tons)	Hydrate (tons)
Agricultural	1,186	6,120
Building	16,751	28,209
Chemical	115,287	25,543
Total	133,224	59,872

National Air Pollution Meeting In Washington, May 3, 4, 5

A national conference on air pollution —first government-sponsored conference of its kind—will be held in Washington, D. C. on May 3, 4 and 5, according to Secretary of the Interior Oscar L. Chapman. The conference, called at the suggestion of the President, will attempt to find solutions to the problems of atmospheric contamination.

Dr. Louis C. McCabe, chairman of the Interdepartmental Committee, is coordinating plans for the conference.

In May of 1949, according to the Bureau of Labor statistics, average wages in the cement industry were $1.38 an hour; the average number of hours worked each week was 41.6, making an average of $57.41 earned a week.

1947 Minerals Yearbook Now Available to Public At U.S. Printing Office

The latest issue of the *Minerals Yearbook*, authoritative source of information on domestic and foreign mineral commodities compiled annually by the U. S. Bureau of Mines, is now available for public distribution, Director James Boyd has reported to Secretary of the Interior Oscar L. Chapman.

Containing 1,593 pages of basic data for the year 1947, the mineral industry's peak year of production, the yearbook records the output, distribution, and consumption of all known mineral commodities. It is expected to be of considerable assistance to businessmen, legislators, government officials charged with administering national security and other programs, and to the general public.

Bound copies of the yearbook can be obtained *only* from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. The price is $4.25.

Written and edited by commodity specialists in the Bureau of Mines, the 1947 yearbook contains four main divisions: General, Commodity, State, and Foreign Reviews, and includes a comprehensive index. Preprints of certain portions or chapters may also be obtained from the Superintendent of Documents, Government Printing Office.

Various commodities are alphabetically arranged and comprise 64 chapters, from "abrasives" to "zinc." These commodities include platinum, gold, and other precious metals and gems as well as uranium, petroleum products, coal, and carbon black.

Canadian manufacturers produced 1,493,300 bbls. of Portland cement in October, as compared with 1,389,800 bbls. in October, 1948. The Bureau of Statistics reported production for the first ten months of 1949 at 13,445,800 bbls., as compared with 11,697,500 in the same period last year.

Diesel Units and Equipment Simplify Work at Sargent Plant

Crushing 75 tons of road rock and agline per hour is no mean task in itself, and the problem of keeping the blasted rock in a convenient position for power-shovel loading into trucks only complicates the procedure.

Sargent Bros., Inc., operators of a crushing plant five miles east of Winterset, Ia., have worked out a solution that answers the problem perfectly. The plant uses diesel track-type tractors to bulldoze the blasted rock into position for loading by a ¾-cu. yd. Harnischfeger shovel.

The rock crushing equipment consists of a Pioneer 20 x 36 jaw crusher driven by a "Caterpillar" diesel D13000 engine, which also furnishes power for a feeder, and for conveyors, and screens. A Cedarapids 42-in. hammermill is driven by a D17000 with a converted RD8 engine which has over 30,000 hours on it. Another D13000 is driving a Gruendler model "D" hammermill.

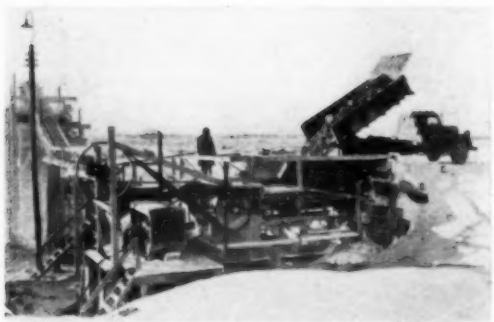
A Gardner-Denver air compressor used for rock drilling is powered by a "Caterpillar" diesel D8800 engine. One of the shovels owned by the company, a ¾-cu. yd. Sargent, is powered by a D4600 engine.

Considerable haul road building and maintenance are necessary for continued operation of the crushing plant, and the "Caterpillar" diesel track-type tractors handle this work in addition to their stripping and stock-piling duties. Three D7 tractors are used at various times

with "Caterpillar" 7S bulldozers, a La Plant-Choate bulldozer, LeTourneau scoop, La Plant-Choate scoop, and a La Plant-Choate pan for stripping work, dozing roads, and maintaining and building roads. The company is also using a D4 with T4 Traxcavator for loading and stock-piling rock and lime.

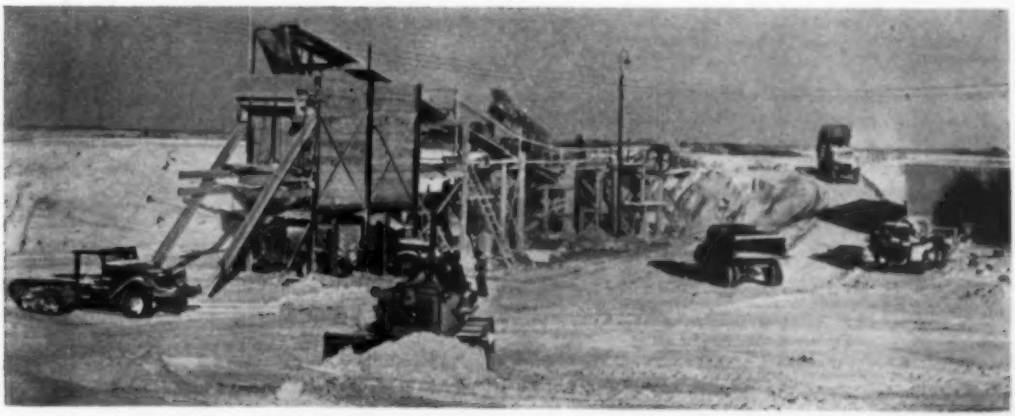
Sargent Bros. use Dodge trucks for hauling the rock to the crushing plant, the average length of haul being about 900 feet. The overburden averages about 18 feet, and the workings cover approximately 20 acres. The yearly output amounts to 100,000 tons of road rock and ag lime.

• Drill, shovel and bulldozer working in the snow-covered quarry of Sargent Brothers, Inc., Des Moines, Ia., located five miles east of Winterset, Ia.



• Truck dumping rock to the feeder of the primary crusher. The diesel engine powers the crusher and feeder.

• The two diesel engines which power the second crusher, the conveyors and the screen.



• Here the bulldozer-tractor team is dozing snow to clear the road for more efficient operation on a wintry day at Winterset.

30 years ago in Pit and Quarry

By WALTER E. TRAUFFER

THE April, 1920, issue of PIT AND QUARRY was one of the largest published up to that time, with 52 editorial pages. With the big conventions all over, the content was back to normal and covered a wide range of subjects. Personalities were very much in the forefront, many of them still active in the industry. Arthur R. Wilson and others incorporated the Coast Rock & Gravel Company to take over the plants of the Natomas Company of California. R. B. Tyler of the R. B. Tyler Stone Company, Louisville, Ky., was mentioned as one of the pioneers in using motor trucks, both in the quarry and for deliveries. H. C. Hoffstetter of Indianapolis was the new president of the Indiana Sand & Gravel Producers' Association. E. Guy Sutton, business manager of the National Association of Sand & Gravel Producers, advised members on the steps necessary to get an adequate supply of freight cars.

Alec W. Dann, of the Keystone Sand & Supply Company, Pittsburgh, Pa., now the Keystone Division of the Dravo Corporation, of which he is now executive vice-president, wrote an article on *Getting Sand from the Rivers Around Pittsburgh*. George B. Wood, of the Rockland-Rockport Lime Company, Rockland, Me., designed a new insignia for the National Lime Association, of which he was a director. T. M. Ryan of the Buxton Lime Firms Company, Ltd., Buxton, England, was a visitor to this country and made a tour of lime plants, escorted by Charles C. Kritzer of the Kritzer Company, Chicago. Jesse Allen, founder of the Jesse Allen Lime Company, Burns, Tenn., died in Palm Beach at the age of 79. The Grand Rapids Gravel Company, Grand Rapids, Mich., was incorporated by William J. Breen and Nicholas, Henry N., and Dewey D. Battjes. H. H. Siff was in charge of the new Detroit, Mich., office of the Easton Car & Construction Company. G. E. Warren left the Universal Portland Cement Co. to become manager of the newly-reorganized American Concrete Pipe Assn.

Daniel J. Hauer, associate editor of PIT AND QUARRY, outdid himself in this issue with three original articles, on *Stockpiles and How to Manage Them*, *Use of Bars in Quarries*, and *General Methods of Developing and Working Grade Quarries*.

There were many other articles of interest to nonmetallic minerals producers in this issue, but we will pass them up to reprint in full an original poem by E. G. Brown, then manager of the Milwaukee office of the Janesville Sand & Gravel Co., which is just as appropriate today as it was 30 years ago.

H. C. L.

I talked to the farmer; he passed the buck
By saying that he was out of luck.
"Look what I pay for my tools and twine
And the clothes I buy for me and mine.
Why shouldn't I get enough for my milk
To buy my wife a dress of silk?
And also an auto to be in style,
For it takes too long to walk a mile.
It's the pesky man that keeps the store
That takes all I make and then some more,
And he's to blame for this H. C. L.
And that's the truth I'm here to tell."

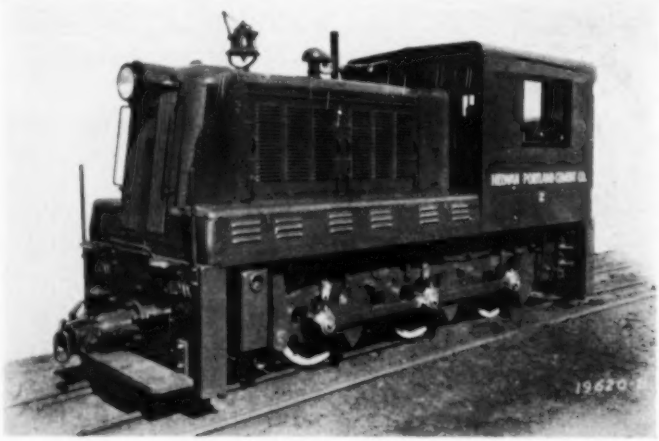
I asked of the merchant the why and where
Of the reason that prices were up in the air.
"It's as plain as the nose," he said, "on your face,
That the manufacturers set the pace;
They raise the price on what is here
Till there won't be a profit at all this year.
You'll have to go to them, he said,
And I wish to goodness they all were dead."

I asked the man who made the tools
If he thought the merchants all were fools,
And what he raised the prices for
When as yet we haven't got over the war.
"It's no fault of mine," he said to me,
"Just put the blame where it ought to be.
It's the men who have money and want to get more,
And they are the ones who make me sore;
They say that my dollars, without defense,
Are only worth but fifty cents.
And the wages I pay, why man, it's a fright!
Just go to the banker and there you'll find
The reason for what you have in mind."

Here at last I found a man that knew;
At least what he said I thought was true,
So I asked of the banker what he did with his money
And he looked at me smiling and said it was funny.
"It's none of it mine; you surely should know
The others have left it with me to grow.
The farmer, the merchant, the man who makes tools,
Have left it with us because we're such fools.
We do all their work and don't charge a cent
Except for the money perhaps that is lent.
But I think if you go to the man who lays brick
You'll find just the man we all ought to kick."

So I went to the mason and asked what he thought
Of the evil he'd done and trouble he'd brought.
"Why, man, is it possible you don't see
There's nothing at all that's left for me;
A dollar 'n' quarter an hour," he said,
"An' at that I have to beg my bread;
An' look what the farmers charge for meat;
I can't buy enough for the kids to eat."

So it goes in a circle, this H. C. of L.
As we look for the chance to give it h---
But the trouble is this—if you think just a minute—
We're all of us trying to get all that's in it.



• This 22½-ton Vulcan Iron Works diesel-electric locomotive was shipped to Cairo, Egypt, for use in the plant of the Helwan Portland Cement Company. The locomotive is powered by a 6-cylinder full-diesel engine (Caterpillar D-13000) rated 150 hp. at 1000 r.p.m. Bronze-cloth screens keep cement dust out of the generator and the motor. There are spring-loaded couplers and buffers and six driving wheels, instead of the usual four for a locomotive of this size, assuring safe operation on relatively light tracks.

From the State Capitals

NEW JERSEY—About $75,000,000 will be spent by the New Jersey Turnpike Authority, and nearly all of the construction contracts will be committed during 1950 on its projected $220,000,000 cross-state 118-mile toll highway.

New Jersey may lose $2,795,630 in federal aid for highway construction if it resorts to highway fund diversion in the 1950-51 fiscal year, according to a report from Washington. The Federal Bureau of Public Roads said it could cut New Jersey's share of federal highway aid by one-third as a penalty for any diversion of automotive tax revenues to non-highway purposes. New Jersey's apportionment of federal highway aid for the next fiscal year is $8,386,890.

LOUISIANA — An appropriation of $5,000,000 for highway purposes from general fund revenues was given final approval by a special session of the Louisiana legislature.

SOUTH DAKOTA — South Dakota's state highway commission has scheduled 348 miles of new highway improvement on the state's primary road system for the fiscal year starting next July 1.

The total cost of the program is estimated at $4,748,712, of which $1,977,563 would be state funds and the remainder federal money. This program does not include projects previously programmed on both primary and secondary systems, and not yet let to contract.

WISCONSIN—Chairman James Law of the Wisconsin State Highway Commission has announced that his department plans to spend about $80,000,000 on state roads and bridges this year, approximately the same amount as in 1949 and 1948.

Virtually all the work will be improvement and reconstruction, he said, pointing out that the state will get more for its money this year because of reduced building costs.

MICHIGAN—Gov. G. Mennen Williams announced that he would recommend to the special session of the Michigan legislature, starting March 15, enactment of the Michigan Good Roads Federation program of highway administrative reforms and an appropriation of $18,500,000 from the general fund for a road construction program.

With this money and matching funds from local and federal sources, he said, Michigan can undertake a road program totaling $40,000,000, and possibly $48,000,000, during the coming fiscal year.

KENTUCKY—Kentucky's senate passed and sent to the lower house a bill providing for the establishment of a system of toll roads to be supervised by the state highway department. Under this bill, the roads would be constructed with funds from revenue bonds which would be retired from toll receipts. No routes are designated by the bill.

MASSACHUSETTS — A proposed $60,000,000 toll superhighway across Massachusetts would be "economically unsound and financially unwise," according to a report filed by a state legislative interim commission. Such a toll road had been proposed as the Massachusetts link in a system of similar highways running from Maine through Pennsylvania.

FEDERAL AID—Forecasting federal aid for school construction, Dr. Ray L. Hamon of the United States Office of Education said that this country faces the most serious educational plant shortage in its history.

He predicted that during the next eight years this country will need to build a minimum of 500,000 classrooms, at a total cost of $13,500,000,000, with an annual outlay exceeding $1,500,000,000 for public elementary and secondary school buildings.

NEW YORK—Bills providing for state highway bonds totaling $500,000,000 and the gradual elimination of highway fund diversion were introduced in the New York State Legislature.

The proposed legislation was designed to carry out a plan to provide for annual state highway expenditures of $175,000,000 from 1952 through 1960.

FLORIDA — An overall tentative 1950 budget of $79,181,106, including $59,733,852 for new road and bridge construction, was announced by the Florida State Road Department.

The budget provides for $45,721,500 in new primary construction and $14,012,352 in new secondary farm-to-market construction. Some of the work already is under way. In comparison, only $34,118,776 in federal, state and county funds was budgeted for new construction last year, while the 1948 budget totaled $57,992,441.

SOUTH DAKOTA — Gov. George T. Mickelson has signed into South Dakota law bills to permit cities to engage in public housing projects and to take advantage of federal funds available for that purpose.

Octogenarian Chalkmaker Fills Continuing Demand

More than 80 years ago when he was a small boy in Prospect, Me., James D. Holbrook used to watch his father make chalk. The elder Holbrook used the purest clay from a stagnant pond near his home. He ground it, mixed it with iron oxide, dried the resulting mixture, and cut it into squares. These pieces were used in the granite quarries to mark the big slabs for cutting.

Today Mr. Holbrook, now 87, is still turning out the same product. Last summer, he estimates, more than 11,000 cakes of the famous chalk were made at the small shop behind his home in Bucksport, Me., and through the years, he says, he has made millions of pieces for use in quarries.

Using clay from the same stagnant pond in Prospect, Mr. Holbrook pulverizes it with the same heavy mallets made and used for the purpose by his father. Adding a little water and stirring with a heavy paddle, he makes a thick paste, then adds enough iron oxide to give the mixture a reddish color. Then he molds the paste into sticks which are dried in the sun.

When it is nearly dry, the chalk is cut into cakes with a knife whose fine steel blade has been worn thin with the years. The elderly chalk-maker stamps each block with his name or the name of the Rockland firm which markets the product. Another drying period follows, after which the chalk is packed in sawdust-filled wooden boxes for shipping. Mr. Holbrook looks forward to many more years as Maine's only stonecutter's chalkmaker.

• Mr. Holbrook at work in his shop, still turning out chalk at 87.

Bureau Lists Average Heating Values of American Coals

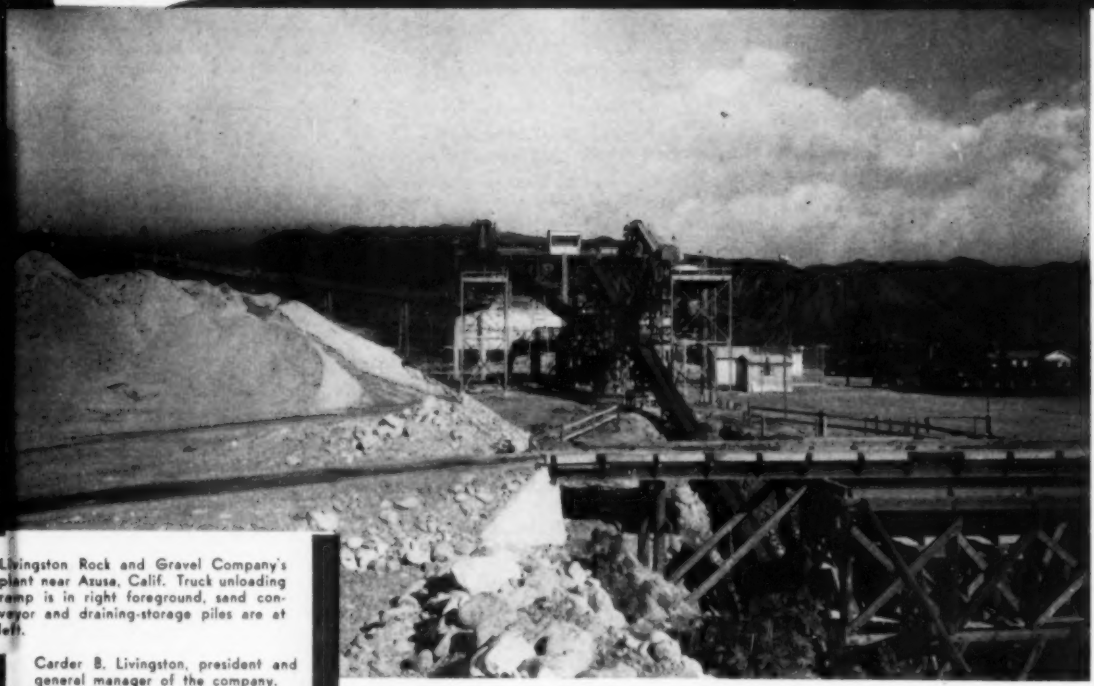
The average heat content of the various coals produced in the United States are listed in an information circular issued recently by James Boyd, director of the Bureau of Mines. These heating values, compiled both by rank (or class) and according to the 27 states in which they were mined, are useful in making general comparisons between the different coals, and between coals and other fuels.

A free copy of Information Circular 7538, *Average Heating Values of American Coals by Rank and States*, by George J. Flynn Jr., may be obtained by writing to the Bureau of Mines, Publications Distribution Section, 4800 Forbes Street, Pittsburgh 13, Pa.

Bulletin Describes Methods Of Mining Brucite in Nevada

Mining practices at the only commercial deposit of brucite—a mineral used in the manufacture of fire brick and refractories for open-hearth furnaces—now being operated in the United States, are described in a publication released by Secretary of the Interior Oscar L. Chapman. This report on the operation of the Basic Refractories, Inc., project near Gabbs, Nye County, Nev., is one of a Bureau of Mines series on techniques and methods of interest to the mining industry.

No Smog From This Sand and Gravel Plant



Livingston Rock and Gravel Company's plant near Azusa, Calif. Truck unloading ramp is in right foreground, sand conveyor and draining-storage piles are at left.

Carder B. Livingston, president and general manager of the company.

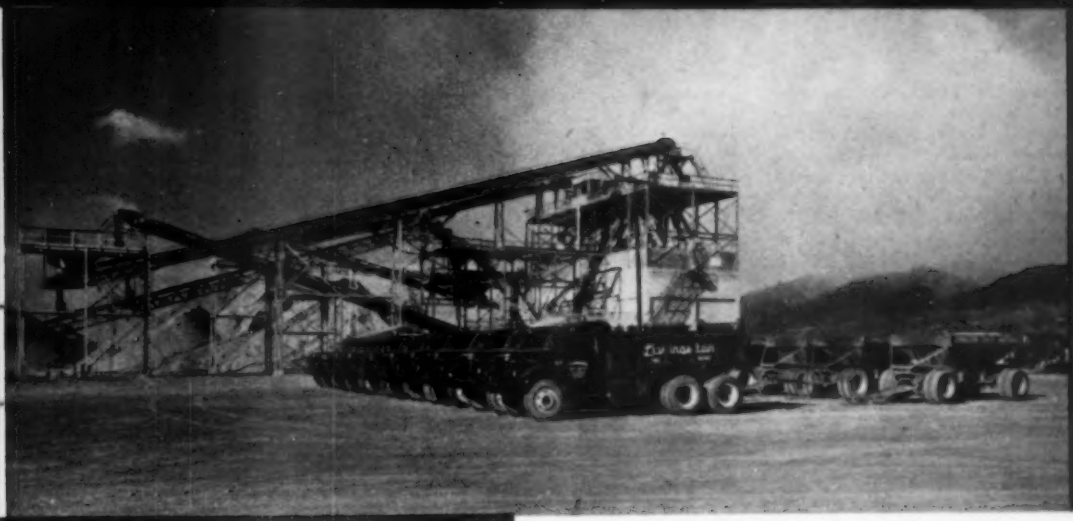
Mother On The Spot Report

WHEN Carder B. Livingston threw the switch that started production at the new San Gabriel Valley sand and gravel plant of the Livingston Rock & Gravel Company on September 28, 1949, he was back on familiar ground.

Twenty-six years before, he had built a plant in the valley, operating it until 1929, when it was acquired by Graham Bros., Inc. Mr. Livingston continued with the new owners until about ten years ago, when he resigned to establish the Livingston Truck & Materials Company in Long Beach, Calif. Its plant and quarry, overlooking the Pacific Ocean in the Palos Verdes Hills, is a high-production unit which turns out roadbase material and jetty rock for harbor work.*

The new aggregates plant is located west of Azusa, Calif. Its capacity is 450 t.p.h. of commercial sand and gravel, output being out equally divided between crushed and uncrushed material. It is of steel and concrete construction. The visitor is impressed by the ample headroom provided to permit the extensive use of gravity chutes, and to improve general neatness of the plant itself. The chutes and other equipment in-

*See Pit and Quarry, June, 1948, p. 93.



Part of the delivery fleet lined up in front of the plant. The company owns a total of 54 trucks and 20 trailers.

One of the pit trucks discharging a 15-ton load at the hopper.

Shovel loading one of the 15-ton end-dump pit-to-plant trucks.

stallations were painstakingly designed to match the flow of materials as closely as possible.

On the "dry" (crushed-rock) side, atmospheric dust is reduced to the minimum by the enclosure of the equipment. This dust-proofing involves the screens, chutes, and the tops of the bins. Even the head pulleys on the crushed-gravel conveyors are hooded to eliminate dust at these points of turbulence. All industry in the greater Los Angeles area currently is under pressure of the Air Pollution Control Board in its intensive drive to eliminate "smog",

Completely Modern 450-t.p.h. California Operation Cited For Dust Control Efficiency

and the Livingston plant management has a letter of commendation from the board for its efforts in this direction. Other plants in the area are referred to this one as a model to follow.

Materials are handled entirely by conveyors and chutes, no bucket lines being employed. Much of the equipment was fabricated in the Livingston shops in Long Beach, including some of the conveyor structures which employ greaseless idlers and rolls.

The deposit is the typical deep, high-grade, well-proportioned material worked by a dozen or so other plants in the San Gabriel Valley. Pit-to-plant-hopper distance at present is about 650 ft., digging being done by a Northwest 80D diesel-powered shovel handling a 2½-cu. yd. Amsco dipper. The White 4-wheel-drive end-dump pit trucks, powered by 150-hp. Cummins diesel engines, carry about 18 tons per trip and drive over the 50-ton steel hopper to discharge their loads. A Cedarapids pan feeder below the hopper puts the material over a sloping grizzly, the plus 4-in. going directly into a Cedarapids 30- by 42-in. primary jaw crusher. Grizzly troughs are laid on the 36-in. by 213-ft. main belt conveyor first, providing a cushion for the product discharged by the crusher. The conveyor runs on an 18-degree incline and the material, with top size now brought down to about 4 in., is discharged to the scalpers, which consist of a Symons 42-in. vibrating grizzly followed by a Symons 42-in. by 12-ft. single-deck screen. Grizzly bars are set in rubber, the openings tapering from 3 to 3½ in., vibration being imparted by a motor-driven eccentric shaft. Throughs from this grizzly drop to the screen, all material passing the cloth going on for processing as washed gravel and sand, while both screen and vibrating-grizzly rejects are chuted to a secondary cone crusher below. Purpose of the grizzly-plus-screen installation was two-fold: (1) to insure the cleanest possible separation at this point, and (2) to relieve the screen of an otherwise heavy load. An extremely accurate separation was desired at this point since all the material retained on the screen is processed as unwashed crushed gravel (or "rock", as the Los Angeles trade prefers to call it), while the throughs make up the supply for the washed gravel and sand side. The size of the screen openings, of course, determines the top size of washed-gravel production and can be changed to suit the demand; normally it carries 1½-in. woven wire cloth.

Dry Side Flow As mentioned, material scalped by the grizzly and screen is chuted to a secondary crusher. This is a Nordberg Symons 4¼-ft. standard cone, and the product is carried by a 30-in. by 113-ft. conveyor to a Symons 42-in. by 10-ft. double-deck intermediate screen. Top deck of this screen has 1⅛-in. openings and the bottom ⅜-in. Some of the ⅜- to 1-in. material retained on the lower deck may be removed at this point and returned by shute to the main conveyor leading to the scalpers to "sweeten" the output of washed gravel in this size range, since it is in heaviest local demand. The remainder is recombined and sent up to the rock classifying screens above the finished-material bins by a 30-in. by 156-ft. conveyor. Or, the entire output of rock can be classified at this point and diverted to a truck-loading hopper for sale or storage as crusher-run road-base material. Should the screen not be required for either of the purposes mentioned, the load coming up the belt from the cone crusher can by-pass it entirely and be transferred directly to the 30-in. by 156-ft. conveyor running up to the rock-sizing screens.

All crushed material is finally classified by an identical pair of Symons 42-in. by 14-ft. divided double-deck screens located above the storage bins at the east end of the structure. Rock coming off the 30-in. by 156-ft. conveyor discharges into a baffle box to retard movement somewhat; and a divided chute equalizes the feed to the two screens, arranged side by side. Should one of the screens be inoperative for any reason, a gate in the chute can shunt the entire load to the other screen.

The plus 1-in. top-deck rejects are usually subject to recrushing, oversize from both screens dropping to a common chute running in a straight line to another Symons cone crusher near ground level. This is a 4-ft. short-head unit in closed circuit with the screens via the same conveyor system served by the secondary cone.

The installation of the secondary and tertiary cone crushers is especially interesting. Each is mounted on four legs and stands 9 ft. above ground level, the legs being 8-in., 31-lb. wide-flange structural-steel members anchored into a heavy concrete base in the ground. Crusher decks are independent of the base structure to dampen vibration. Both crushers are arranged in line with ample room underneath for the one inclined conveyor to serve both continuously. In fact, there is provision for the installation of a third reduction crusher, also in line with the two cones, if this becomes necessary; and the same conveyor could serve all three units simply by extending the tail pulley and lengthening the belting. The installation makes for 100 percent accessibility and is an aid to cleanliness. Any spillage can be washed away with a hose in short order. A monorail hoist above the crushers will make it easy quickly to pull the cones and other heavy crusher parts in case repairs are necessary.

Four sizes of crushed material are usually produced, ranging from 1 in. down to dust, and these are spouted into the enclosed bin compartments below the rock-classifying screens.

Wet Side Flow Referring back, the minus 1½-in. pit-run material passing the first scalping screen is washed and classified on the "wet side" of the plant. Two conveyors with 30-in. belts and in dog-leg arrangement to gain height deliver the sand and gravel to the two Symons 42-in. by 14-ft. screens. These are identical to those used in sizing the crushed material and are similarly fed, except that they are equipped with washing sprays and are not, of course, enclosed, since there is no dust problem. All of the product is classified and chuted to its proper bin compartment below, except for the bottom-deck throughs, which go to a sand drag for processing as concrete sand. Initially, there is no provision for making plaster sand, but facilities may be added later.

The sand drag has 48-in. steel paddles mounted on rubber belting and operates in a tub 28 ft. long which has an enlarged section at the feed end forming a sump to allow the finer sand fraction to settle out and be recovered. The drag was built in the company's Long Beach shops.

All of the sand is stored in the open, being carried from the discharge end of the drag by a 24-in. by 150-ft. stacker conveyor which is 43 ft. above ground level at the head pulley. Aided by two plows on the belt, the sand drops into three separate piles below the stacker to facilitate drainage. Capacity will be about 12,000 tons. Sand is loaded out from the driest pile by a Northwest clamshell crane.

The reinforced-concrete storage bunker has 16 compartments, arranged in two rows, for loading

trucks. Each has about 135 tons' capacity. Tracks have also been laid in the driveways; the main line of the Santa Fe R.R. runs close by, but carloading facilities have not as yet been made available. Openings were left in the sides of the bin structure for the possible installation later on of gates to withdraw material to a conveyor which would lead to a crusher for further reduction. For the time being, however, these openings have been closed off.

The control house is located at a high point atop the bunkers, where all operations are within view of the operator. Switches are interlocked for the most part, making it impossible to start or stop equipment except in proper sequence. A variable-speed switch in the control house to the primary-feeder motor also enables the operator to regulate the rate of feed to the entire plant. Should any of the classifying screens be down, for example, he is able to reduce the flow of oncoming material to match the capacity of the screen or screens operating at that particular time.

After two months of operation, an analysis of production and sales by size range was made, revealing the following:

Washed Material	Percent of Output
Sand	24.3
Pea gravel	2.8
1 in. to ⅜ in.	17.4
1½ in. to ¾ in.	4.7
Crushed Material	
Dust	10.4
¼ in. to No. 8	4.4
⅜ in. to ⅛ in.	14.2
1 in. to ⅜ in.	21.8
	100.0

Each of the three crushers is powered by a 150-hp. motor. Connected motor horsepower for the plant totals about 850.

Wash water is obtained from a 16-in. cased well 325 ft. deep. A Pomona pump with integral 125-hp. motor supplies 800 g.p.m., considered ample for present and future needs.

The 50-ton Webb truck scale is equipped with "Weightograph" recorder, and the platform is a full 60 ft. long, accommodating a truck and trailer and permitting a single reading.

The delivery fleet is composed of 54 trucks and 20 trailers. Included are 35 Reo units and 10 new 5½-cu. yd. Challenge truck-mixers on F8 Model 1950 Ford chassis. The truck-mixers are to serve a batching plant recently acquired in North Long Beach, and a Noble plant soon to be erected on a site yet to be selected. If a construction-market survey proves it advisable, the second batch plant may be installed at the new Azusa plant.

James Worthington is superintendent of the new operation. Ralph R. Wise is transportation superintendent, and "Curly" Cox, master mechanic. Harry C. Williams is the sales manager.

In designing the new plant, Mr. Livingston his engineer, Edwin Misenhimer, and Superintendent Worthington worked closely with the Long Beach consulting engineering firm of Caldwell & Mason in planning the various details.

Standards Bureau Scientists Succeed in Crystallizing Mica

Mica, a critical material in the manufacture of electrical and electronics equipment, has been successfully synthesised by scientists of the National Bureau of Standards, according to Secretary of Commerce Charles Sawyer.

The synthetic mica, crystallized successfully by Dr. Herbert Insley, Alvin Van Valkenburg, and Robert Pike, all of the Bureau, has essentially the same properties as natural mica but is superior to the natural substance in its ability to withstand high temperatures.

"This discovery is of immense importance to the United States, which is the world's largest consumer of mica but which produces only enough to meet a fraction of its own requirements," Secretary Sawyer said. "During 1948 the U. S. imported 10,000 tons of high grade mica valued at more than $15,000,000. In the same period, domestic production of high grade mica totalled only 135 tons with a value of less than $50,000. Synthetic mica production may make it possible for the United States to meet its own demands for this critical material."

Diesel Unit Pulls Locomotive At California Salt Operation

Solar evaporation, the salt producing process of antiquity, has been adapted to the needs of a modern world by the Leslie Salt Company of Newark, Calif. Here, sea water from San Francisco Bay is collected in large ponds, covering 25,000 acres of table land.

The production of crude salt by this age-old process is facilitated by some of the most up-to-date machinery and equipment available today. An extensive, narrow-gauge railway system is used to move salt from evaporation ponds to processing plant. Important to proper handling of this transportation problem is their Vulcan locomotive which was recently repowered with a new three-cylinder General Motors diesel engine-torque converter unit.

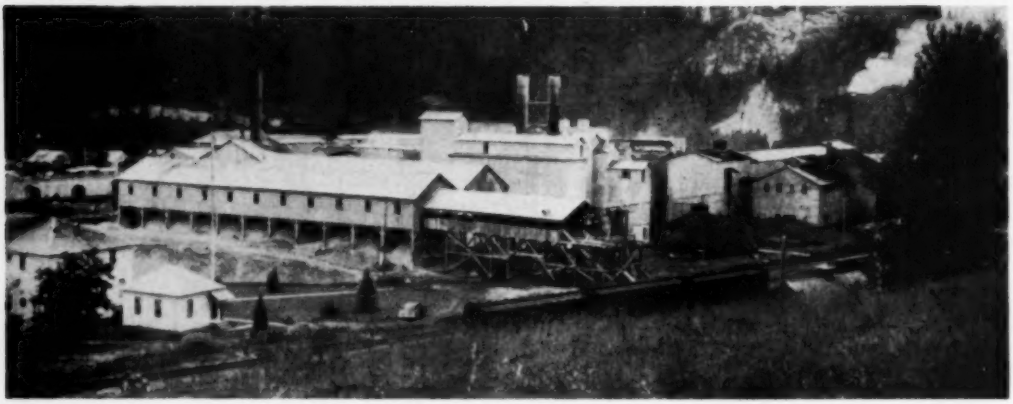
This power conversion provides the locomotive with the advantage of diesel economy of operation, plus a high torque multiplication that makes it capable of getting heavily loaded trains underway smoothly and swiftly without gear shifting. The General Motors torque converter has the added feature of automatic shift into fluid coupling when the train gets up to speed for greater efficiency under lighter loads.

Dynamite Plot Can't Stop Business at Otter Creek

John Bradley, manager of the Otter Creek Sand & Gravel Company near Lewistown, Ill., reports that the company is producing sand and gravel, "as usual", despite the explosion which destroyed the scale house, a bulldozer, and a dragline some weeks ago. A crusher and a conveyor which were bady damaged in the explosion, are being repaired at a cost of about $6000.

Local authorities report that progress has been made in tracing the persons responsible for the mysterious blast.

• Leslie Salt Company's diesel locomotive hauling salt at Newark, Calif., operation



• Lehigh Portland Cement Company's plant at Metaline Falls, Wash. In the foreground, rock storage facilities and the tramway unloading station are seen.

Lehigh's Metaline Falls Output Doubled By Modernization Program

By HARRY F. UTLEY

ON THE SPOT

THE Metaline Falls, Wash., plant of the Lehigh Portland Cement Company is the westernmost unit in the Lehigh chain of 13 cement plant. Up until this year it was also the smallest. A major improvement program is now practically complete, however, and the plant's capacity has been doubled to 1,200,000 bbl. annually, a figure which now compares favorably with the average plant of the company.

The plant, situated in rugged country in the extreme northeast corner of the state of Washington, was built in 1910 and went into operation the year following. For many years its original capacity far exceeded the normal needs of the Inland Empire. With the building of Grand Coulee Dam and other mass-concrete structures, however, there was a tremendous upsurge in the demand for cement, and the company accordingly launched plans for expansion and modernization. About this time, though, the government announced its intention of building Boundary Dam. The proposed dam, if constructed, would have inundated the Metaline Falls plant and surrounding area, and all indications then pointed to its probable abandonment. Strong protests from the lead-and-zinc mining interests in the region delayed decision on Boundary Dam for a period of years and, about three years ago, the project was definitely abandoned. Instead, the Bureau of Reclamation announced it would erect several other large dams in the Pacific Northwest. With this indication of an even greater cement demand and the threat of putting the Metaline Falls plant under water removed, Lehigh lost little time in deciding to double plant capacity, and in the shortest possible time.

With the future status of the plant in doubt for so long, along with the unavailability of equipment during the war years, the plant was naturally in a somewhat run-down condition. The schedule of improvements,

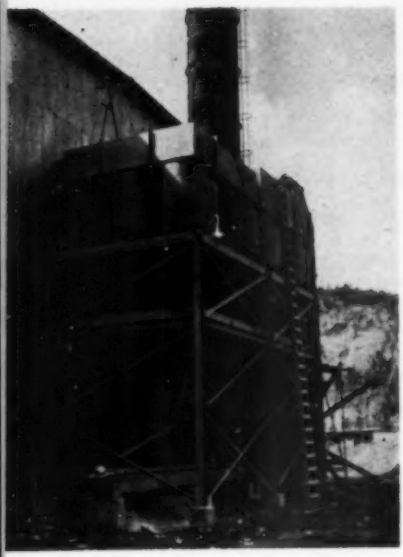
Does the Pacific Northwest need additional cement plants to meet its present and future needs?

Considerable agitation for the erection of new plants has been heard in recent months from certain interests who have advanced the argument that a population gain of 40 percent in the last eight or nine years, coupled with plans for numerous dams and other federal projects, makes this imperative. They compute the annual demand at 10,000,000 bbls. for Washington, Oregon, and Idaho during the next decade or so.

On the other hand, the Northwest cement industry points out that recent improvements to existing facilities (such as the doubling of capacity at Lehigh's Metaline Falls plant, described in the accompanying article) gives the ten plants now in operation a total capacity of 8,800,000 bbls. annually. At the same time, California producers who maintain distributing plants on the Portland and Seattle waterfronts, can supply an additional 1,200,000 bbls., shipping by water from the San Francisco area.

It is also pointed out that Ideal's plant at Trident, Mont., where capacity was recently doubled to 1,350,000 bbls. yearly, can and undoubtedly will ship into the three Northwestern states at least 500,000 bbls. annually. The table below represents a breakdown of cement production in the Northwest.

Plant Location	Annual Capacity in Barrels
Oregon	
Gold Hill (Pacific P. C. Co.)	600,000
Oswego (Oregon P. C. Co.)	1,000,000
Lime (Oregon P. C. Co.)	450,000
Washington	
Bellingham (Olympic P. C. Co.)	1,000,000
Concrete (Superior P. C. Inc.)	2,000,000
Seattle (Superior P. C. Inc.)	1,000,000
Grotto (Northwestern P. C. Co.)	600,000
Metaline Falls (Lehigh P. C. Co.)	1,200,000
Irvin (Spokane P. C. Co.)	650,000
Idaho	
Inkom (Idaho P. C. Co.)	300,000
Available from California and Montana	1,700,000
Total	$10,500,000



• Left: The 12-cyclone dust-collecting system on the new kiln can handle 135,000 c.f.m. at 650 deg. F. The exhaust is via the steel stack.

• Right: The new well drill at work in the quarry.

however, called for the newest and most modern equipment obtainable, and the Lehigh organization expedited the job with typical Lehigh dispatch. As a result, in less than two years the Metaline Falls operation has been largely transformed. Early in 1949 the new kiln—one of the largest dry-process units in existence—was put into production and other equipment is going into service as rapidly as possible.

The plant is located on the Pend Oreille River and is served by the Milwaukee Railroad. The elevation at the plant is about 2,100 ft.; the quarry elevation is about 3,000 ft. Fortunately, the limestone and shale deposits adjoin. A four-component raw-mix is used in the plant. Iron ore is purchased and quartzite is trucked in from a small quarry about 3 miles distant.

Quarry improvements involved a change-over from tripods to wagon drills, plus a new Loomis churn drill, and the adoption of truck haulage from quarry to crusher instead of the old track system. Four new 10-ton Mack trucks have gone into this service up in the quarry. Other quarry improvements include an International TD-18 tractor and bulldozer and a Bucyrus-Erie B-54 2½-cu. yd. electric shovel. Two other Marion 2-cu. yd. shovels will remain in service. Air supply was improved by the installation of an Ingersoll-Rand 410-c.f.m. compressor. The limestone deposit is being benched to develop improved accessibility for the trucks between loading and unloading, and delayed-action blasting has been instituted to improve the shots.

At the crusher house near the main quarry level, but still 900 ft. higher than the cement plant, the trucks dump to an Allis-Chalmers No. 9 gyratory crusher, secondary breakage being accomplished by two Allis-Chalmers No. 5 machines. A new Jeffrey vibrating grizzly has been installed between the primary and secondary units as a feeder and to by-pass the primary fines; and an electric hoist was erected to assist in breaking up rock jams. The product, minus 2-in. in size, is carried by a 24-in. by 250-ft. belt conveyor to the tramway loading bin. This bin originally held but 250 tons, but its capacity has now been increased to 1,200 tons. The rock is brought down to the plant by the Riblett 5,180-ft. tramway which has been in service for many years. The tramway now has an increased capacity of 75 t.p.h., however, its output having recently been stepped up by adding 14 buckets to the original 42 on the line. Each bucket carries about 1,250 lbs., a load discharging at the

• This view in the limestone quarry shows the new 2½-cu. yd. electric shovel (foreground). In the distance is the crushing plant.

• This gearless gyratory crusher is being installed to make the final reduction of the raw rock before it goes to the ball mill. It is in closed circuit with a vibrating screen.

plant about every 30 seconds.

From the storage pile at the plant end of the tram, the stone is recovered by tunnel belt-conveyor and fed to a pair of existing Vulcan 7- by 60-ft. rotary dryers before being elevated to the raw-mill hoppers. Originally, raw grinding was done by six Bradley Griffin mills, followed by a tube-mill. These have been retired from service and replaced by a new Kennedy-Van Saun 10- by 18-ft. air-swept ball-mill driven by an 800-hp. Electric Machinery synchronous motor.

Feed is proportioned by two new Schaffer "Poidometers", one operating on limestone, the other on shale and quartzite, and the product reduced to about ½-in.-minus by a 36- by 42-in. Jeffrey hammermill before going to the air-swept mill. The final stage of raw grinding is done by a Traylor 6- by 22-ft. tube-mill, the mills operating in closed circuit with special air-classifiers and a Sturtevant separator to produce the required fineness of 90-92 percent through 200-mesh at a rate of 60-65 t.p.h. The feed to the Kennedy-Van Saun mill is currently being dried before entering the mill. In the near future, however, the dryers will be by-passed by means of two belt conveyors and the material dried by pre-heated air in the mill as it is ground. Improvement in the preparation of the feed to the ball-mill is also under way. The old hammermill is being replaced by a Kennedy No. 49½ Type S gearless gyratory crusher in closed circuit with a Kennedy-Van Saun 5- by 12-ft. single-deck screen. A more uniformly-sized product, about ⅜ in. in top size, will result from this combination, and better efficiency in mill grinding is expected to be gained.

The raw mill product is carried by screw conveyors and elevators to the 14 blendings bins, each of 125 tons' capacity. After blending, it is pumped to the kilns by the Fuller-Kinyon system.

Until the new long kiln was installed in the spring of 1949, burning had been done in two 9½- by 140-ft. kilns which had been in service ever since the plant began operating 38 years ago. They are followed by Lehigh-design upright coolers.

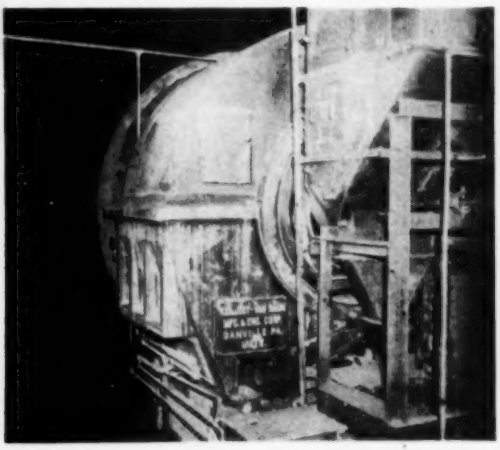
The new rotary kiln, an F. L. Smidth 10- by 350-ft. all-welded unit, equals in size the largest of the dry-process kilns ever designed and built. It is mounted on five 14-in. tires turning on water-cooled trunnions, and slopes 7/16 in. per ft. of length. The drive is a Westinghouse 75-hp. motor through a Philadelphia gear reducer. Contrary to general practice, however, there is no standby internal-combustion engine to turn the kiln in the event of motor or power failure. The possibility of motor trouble is held to be extremely remote and, since the plant is supplied with power from two sources—its own hydro-electric plant and public-utility power generated at Grand Coulee Dam—there seems little likelihood of both sources failing at the identical time.

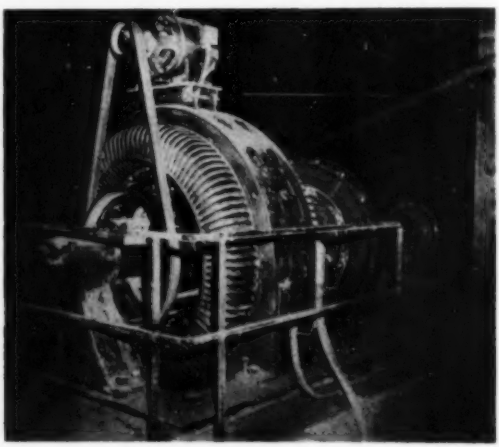
The kiln is lined throughout with standard refractory brick, following recommendations of the manufacturer, 40- and 50-percent alumina units being used except in the 40-ft. burning zone, where 70-percent high-alumina brick are employed. Kiln speed is generally maintained at 78 r.p.h., somewhat higher than normal practice. Rate of feed is synchronized with the kiln speed, regulation being automatic.

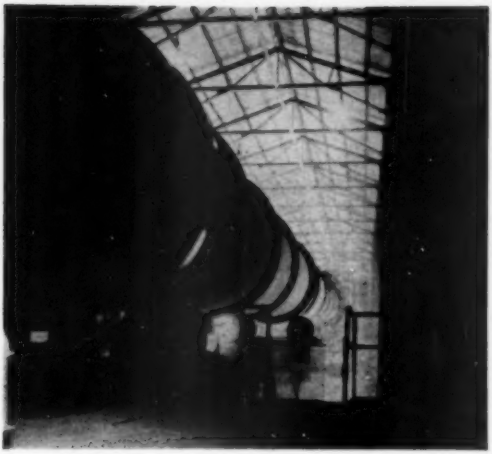
Although their fuel economy is relatively poor, the two old kilns are to continue operative. Together they can produce about 80 bbls. per hr., whereas the long kiln is turning out 90 to 95 bbls. per hr. From 100 to 110 lbs. of coal are required to burn a barrel of clinker in the short kilns, while the new kiln is apparently consuming about 80 lbs. (about 1,000,000 B.t.u.'s) per bbl.

• Below, left: Two 10- by 18-ft. air-swept mills were installed for raw and finish grinding.

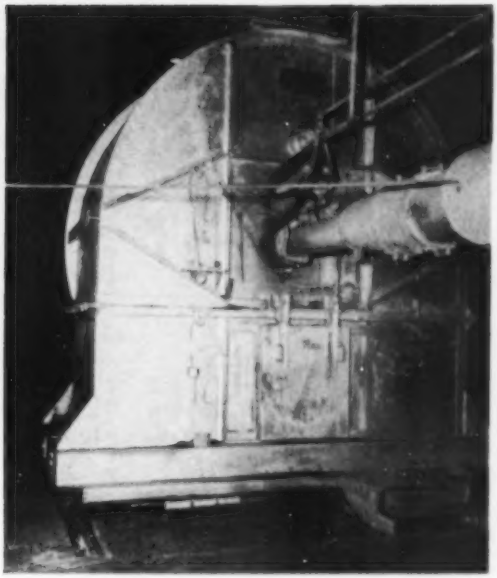
• Below, right: The 800-hp. synchronous motor on one of the new mills.







• Perspective in the kiln building which houses the new 10- by 350-ft. all-welded kiln.



• Right: The hood and burner pipe at the discharge end of the new kiln.

While the marked economy of the new calcining unit is due in considerable measure to its extreme length, the use of the latest type of air-quenching clinker cooler is also credited on the fuel-saving ledger with a portion of the efficiency attained. This is a No. 637 Fuller inclined-grate unit which recuperates part of the heat dissipated in the cooling process and returns it to the kilns with the secondary air. The management estimates that possibly 80 percent of the combustion air in the kiln is represented by that recuperated through the cooler, the remainder entering as tempering air to the unit pulverizer and around the kiln hood. A thermocouple over the cooler grates regulates the temperature: volume ratio. The excess air over that required for combustion passes up the exhaust stack on the cooler.

A high-quality Utah bituminous coal shipped in by rail, is burned. It has an average value of 12,500 B.t.u.'s per lb. with a top size of 3/16 in. The new kiln is served by an E-41 Babcock & Wilcox direct-firing coal mill located just below the burning floor. The mill has an average grinding capacity of 8,000 lbs. of coal per hr. with 80 percent passing 200 mesh, hot air for drying being taken from the kiln at the hood.

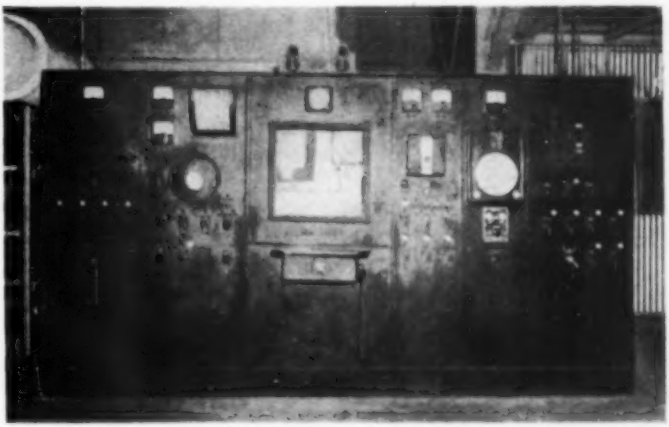
A new Buell dust-collecting system has been installed on the new kiln. It consists of two banks of six No. 11½ F.A.C. cyclones, with the 200-hp. induced-draft fan placed behind the collectors in this instance, and exhausting to a 100-ft. metal stack. The system has a guaranteed recovery of 80 percent and can handle 135,000 c.f.m. at 650 deg. F.

On the finish side, the clinker is first partially broken down by a Kennedy-Van Saun No. 37½ crusher before going to the preliminary grinding unit, another new Kennedy-Van Saun air-swept mill and an 800-hp. Electric Machinery synchronous motor identical with the installation on the raw side. After attaining a fineness of 70-75 percent through 200-mesh, it is finally pulverized and classified as finished cement by two Traylor 6½- by 22-ft. tube mills with a Sturtevant 16-ft. air separator in closed circuit. The preliminary ground material is conveyed 200 feet to the tube mills by an F.-H. Air-Slide. Screw conveyors carry the finished product to the stockhouse, which has a capacity of 190,000 bbls.

The company's hydro-electric power plant is located about one mile from the cement plant and gets its water by aqueduct under a 450-ft. head from Lake Sullivan in the mountains. It is equipped with two 1,750-kv.-a. generators, the 2,300-volt line to the transformers being synchronized with the utility power supply with which it is now tied in.

The plant normally employs 170 workers, nearly a third of whom are housed in 36 company-owned houses. A modern change-house was erected in the summer of 1949 to accommodate 200 men.

(*Continued on page* 71)



• The panel board where all kiln instruments and controls are centralized.

WASHINGTON NEWS LETTER

By S. HERBERT UNTERBERGER

End of the Coal Strike

FOR some years now an unofficial holiday has been observed in Washington, one that is never found on the calendars. It is, of course, the day the coal strike ends. True to tradition, 1950 had its "end of the coal strike" holiday. However, this one differed from similar days in years past. The spirit of pure unadulterated joy did not prevail everywhere.

This year an uneasy feeling pervades Washington. Most of the officials who had anything to do with the coal crisis are quite sure that very little, if anything, has happened to solve the fundamental problem of the coal industry. As a matter of fact much of the talk is about what to do when the next coal strike hits us. It took a long time but practically everyone is now convinced that something more has to be done about the coal industry than just waiting for the coal miners to take things into their own hands and then blundering and blustering through the crisis created. This is evidenced by the fact that the President is really serious about establishing a commission to study the problem of the coal industry. At this writing the particular composition of that commission is unclear, although it appears entirely likely that one will be established.

The fundamental problem of the coal industry is pretty well understood, namely, that there is more coal producing capacity than there are requirements for coal. This coal producing capacity is composed of coal mines and coal miners, both are in over supply.

Various suggestions have been made as to how to treat the problem. One of the ideas that is being discussed around Washington unofficially and somewhat confidentially is the notion that the coal industry should be subsidized. The people who propose this idea compare the coal industry with agriculture. They point out that the country has essentially made a decision with respect to overproduction and overcapacity in agriculture. In that situation the government stands ready to support the price of farm products or—as is now proposed under the Brennan plan—to let the price of farm products seek their own level, but nevertheless to support the farmer and to keep American farms in such condition that, if required, they can supply substantial amounts of food. With respect to coal these people say that the same philosophy is appropriate, namely, that if the country feels that it must keep its coal producing capacity up to a high level, it can accomplish this result either by supporting the price of coal or alternatively supporting the coal mines and the coal miners. As a matter of fact they point out that their reasoning is better when applied to coal than when applied to the farms. In that connection they say that once coal producing capacity is abandoned, it takes both a great deal of time and money to get it back into operation again. Getting abandoned farms back into operation does not seem to be so difficult a process.

There are, of course, other solutions being proposed. Most of them have far less sophisticated reasoning to back them up. There is a group of people who propose a ban on industry-wide bargaining, expecting thereby to break the power of the coal unions. There are others who seek to accomplish this same result by making labor unions subject to the anti-trust laws. There are, of course, many people who have pet laws they would like to see enacted. This group, which hopes to solve the problem by passing laws, received a severe jolt recently when it was so forcibly brought home that the last law it passed to get John L. Lewis, namely the Taft-Hartley Act, didn't get him.

Nevertheless, it finally appears likely that some real planning will be done before the next coal crisis is upon us. It is to be hoped that no more severe problem, such as an international crisis, will take the minds of the administration and of the Congress off this domestic problem before some effective machinery is established.

Federal Deposit Insurance

This session of the Congress will probably see a rise in the amount of federal deposit insurance from the present levels of $5,000 per depositer to something higher—probably $10,000 or $15,000. The proposal to make this change has brought about a fairly complete evaluation of the operations of the Federal Deposit Insurance Corporation. This is one of the first pieces of New Deal legislation and one that by and large continues to be approved by all parties.

The history of Federal Deposit Insurance is worth looking at. Since 1933 the Federal Deposit Insurance Corporation has collected some $904,000,000 in premiums from the banks that it covered. A large part of those funds have never been paid out for any purpose at all. As a result they have been earning interest which has amounted by now to some $244,000,000 for a total of over $1,100,000,000. On the other side, the total losses have amounted to less than $26,000,000. The administrative expenses during that period amounted to $57,000,000. This has really turned out to be an agency which pays for itself. It has never had to cut into its premium income to pay for anything. The income on its investments have far exceeded all of its administrative expenses and all of its losses. So far the government has made a substantial profit on Federal Deposit Insurance.

It is now proposed to raise the amount of insurance. The Federal Reserve Board has backed an increase from $5,000 to $10,000 per depositor. They base their recommendation on the fact that the funds available could certainly support this amount of insurance and also on the fact that the increase in the price level since 1933 has made the $5,000 figure obsolete. The purchasing power of $10,000 now is not very much more than the purchasing power of $5,000 back in 1933.

On the other hand, the Federal Reserve Board has also recommended that the premiums paid by the banks for deposit insurance should be substantially reduced. Here the board members point out that there is not much more value in building up the funds of the Federal Deposit Insurance Corporation. Those funds have been increased at the rate of more than $100,000,000 a year and they have not been spent. The FRB considers it entirely appropriate that the banks should have the advantage of the reduction in these premiums. It would increase the profits of the banks and might

(Continued on page 71)

Progressive Operators Modernize To Keep Products at Quality Peak

southern ON THE SPOT report

THE plant of the Los Banos Gravel Company at Los Banos, Calif., typifies a transition which has taken place in most of our small-town aggregates operations in the last decade or so. Supplying a purely local demand, without competition for the most part, its forward-looking management has, nevertheless, constantly improved the plant's processing methods to turn out a product that will meet the most rigid of specifications. As a result, it is able to compete on any construction job which may come up within its shipping area—on a quality basis, if not on quantity.

By HARRY F. UTLEY

• General view of the Los Banos Gravel Company's plant at Los Banos, Calif. The gravel truck loading bin is at the right, and the sand plant and crusher are in the unit at the left.

Al Serpa and Frank Buffuna are the owners. Capacity of washed, crushed and sized material is now about 50 t.p.h.

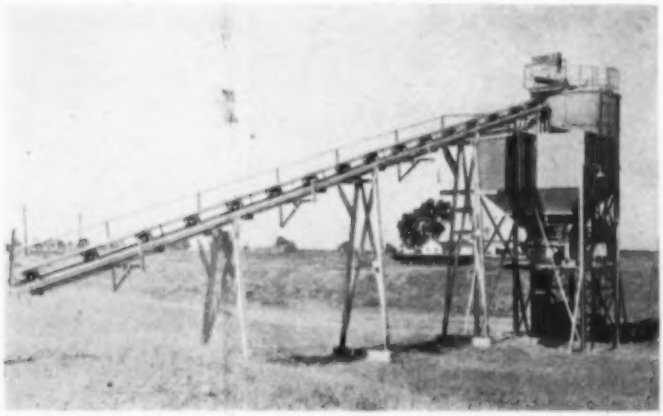
The deposit is located in a dry river bed, and is shallow. Formerly excavated by a slackline cableway and bucket, the pit area close by the plant was exhausted of good material several years ago and dump trucks now operate between a new pit and the plant hopper, excavating and loading being done by a Byers ½-cu. yd. self-propelled gasoline shovel.

About a year ago an old crusher was junked and a modern Straub Kue-Ken 30- by 15-in. Simplex machine was placed in service. With the jaws set at about 1 in., the new crusher handles everything scalped off the 1½-in. top deck of a preliminary vibrating screen, including boulders up to 6 in. in size. As much as 35 t.p.h. of an extremely hard gravel is crushed at times with the crusher in closed circuit with the screen. The efficiency of the new crusher, as compared with the old, is indicated not only in greatly increased capacity, but by the fact that the 50-hp. motor "loafs" at its task at all times. The manufacturer of the Kue-Ken crusher recommends only a 20-hp. motor to power the machine, but the 50-hp. unit was used because it was conveniently at hand, having been used to drive the old jaw crusher where every bit of its power was required even though top output formerly never exceeded 25 t.p.h., according to Mr. Buffuna.

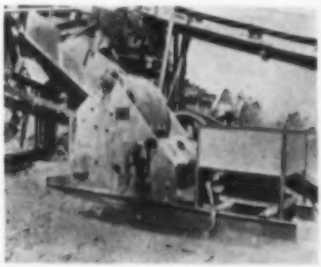
The intermediate deck of the scalping screen takes out the 1½- to ⅜-in. gravel, including both crushed and uncrushed material, and it is carried by an inclined conveyor to a revolving screen with a short preliminary scrubbing section for washing and sizing. The finished materials drop into a compartmented truck-loading bin below.

Scalping screen throughs are processed for sand by a plant-built steel dewatering wheel which turns on its axis set at about 22 degrees from the horizontal. There aren't too many fines in the deposit and the management recently found that it was fluming much of the finer fraction away in the overflow waste from the wheel. To correct this

(Continued on page 71)



• One of the two batching plants recently installed by the company.



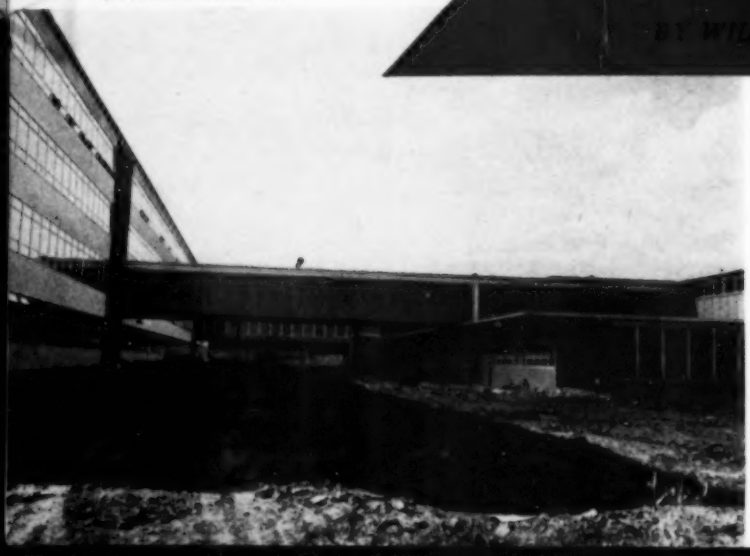
• The new 30- by 15-in. jaw crusher, with the chute from the scalping screen. The sand drag (background) recovers fines formerly wasted from the sand-dewatering wheel overflow.

Engineering classroom building, Glenn L. Martin College of Engineering and Aeronautical Sciences, University of Maryland.

Sand and Gravel and Ready Mix Associations Equip New Lab For Consolidated Research

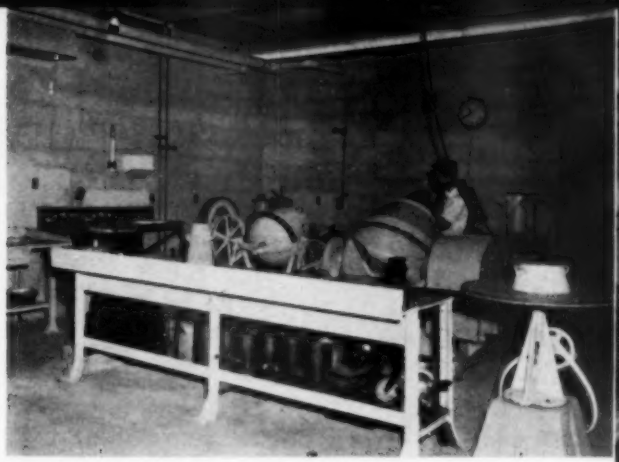
BY WILLIAM M. AVERY

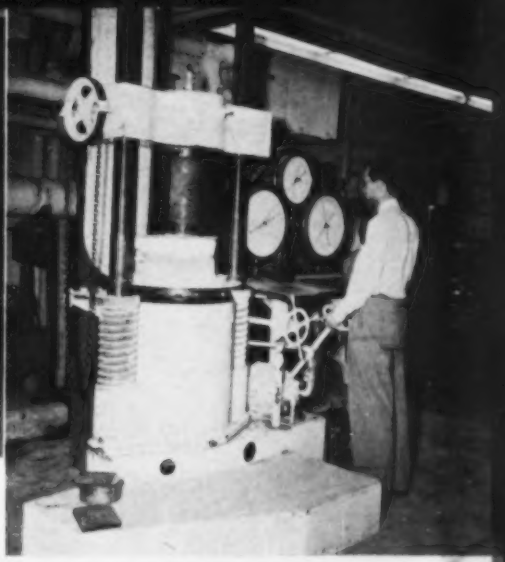
Engineering classroom building (left) and adjoining laboratory building which houses the joint research laboratory.



another ON THE SPOT report

THE joint research program of the National Sand and Gravel Association and the National Ready Mixed Concrete Association is now in full progress in the new laboratory building of the Glenn L. Martin College of Engineering and Aeronautical Science at the University of Maryland. Although the move from the old to the new quarters was made some months ago, much work remained to be done in purchasing and installing new facilities to implement the expanded program which was contemplated when research activities of the two associa-





Above: View of concrete-mixing area showing mixers, scale, flow tables and mold storage.

Right: The 300,000 lb. Southwark-Emery testing machine (before renovation).

New Facilities and Equipment at University of Maryland Geared to Expanded Research Program

tions were placed under the general supervision of a joint committee. Much of the new equipment has since been installed and placed in operation.

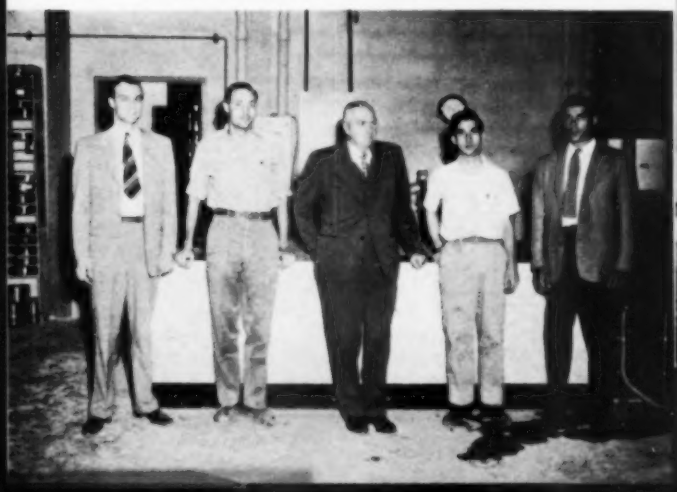
The new laboratory, which is unquestionably one of the finest of its kind in the country, is in a large measure the end product of a unique cooperative arrangement between the university and the two associations. Dr. H. C. Byrd, president of the university, and Prof. S. S. Steinberg, dean of the College of Engineering, have long viewed such cooperation with industry as a prime opportunity to increase the effectiveness of the university's services and facilities. The present cooperative arrangement has been in effect for 12 years.

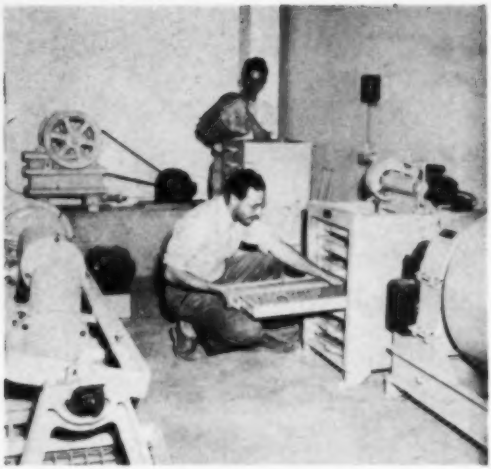
Among the important new items of equipment which are now in operation is an automatic machine for freezing and thawing tests of concrete. Such tests have represented an important part of the laboratory's work since 1940, but the manually-operated machine formerly used was inadequate as to capacity and much too slow, permitting only one cycle of freezing and thawing each 24 hours.

The new machine will duplicate the former procedure of freezing in air at zero F. and thawing in water at 40 deg. F., but it will operate automatically to give at least eight cycles of freezing and thawing in 24 hours. The capacity is 50 standard 3- by 4- by 16-in. beams. Early experience with this machine indicates that it may be possible to run as

Right: S. S. Steinberg, Dean, College of Engineering, University of Maryland, and Stanton Walker, Director of Engineering of the Associations.

Below: The association's engineering staff, left to right: Delmar L. Bloem, E. J. Zeigler, Stanton Walker, James F. Shook and W. G. Mullen.





A partial view of the "noise" room, showing the Deval abrasion machine, the Universal crusher, the Ty-lab and Gilson sieve shakers, and the Los Angeles abrasion machine.

Left: A view of the 70-deg. F. constant temperature room.

many as 9 or 10 cycles per day, making available in 5 or 6 weeks the results that formerly required a year. Temperature uniformity is maintained during the freezing cycle by means of two fans which circulate the air in the cabinet, and thawing water is automatically pumped into the specimen chamber from a tank located below the cabinet.

A second machine, not yet installed, has been designed to duplicate the War Department procedure of both freezing and thawing in water. Final decision as to its installation awaits the results of some comparative tests. If installed, it will permit the laboratory staff of the two associations to make cooperative tests paralleling those of the several laboratories of the Corps of Engineers. This machine is designed to hold 25 standard test specimens, and will run through 12 cycles of freezing and thawing in 24 hours. Design of the two machines was supervised by the associations' staff of engineers. The completed machine was built by the Carrier Division of the United Clay Products Co. It is planned to keep the old machine in operation for comparative studies of the effects of different cycles of freezing and thawing.

As a supplement to the freezing and thawing studies, two thermostatically-controlled tanks have been built in which concrete specimens can be subjected alternately to water at 40 deg. F., air at 40 deg. F., water at selected elevated temperature, and air at the same selected elevated temperature. Preliminary tests with this equipment indicate that significant results may be obtained from such exposure.

Another important addition to facilities of the new laboratory is the modern high-efficiency, forced-draft electric oven supplied by the Precision Scientific Co. It is believed that oven efficiency may account at least in part for the differences in soundness tests obtained by different laboratories. Additional space has also been made available for storing alkali-reactive specimens at elevated temperatures of about 100 deg. F. A constant temerature room has also been provided for sulphate soundness testing at 70 deg. F.

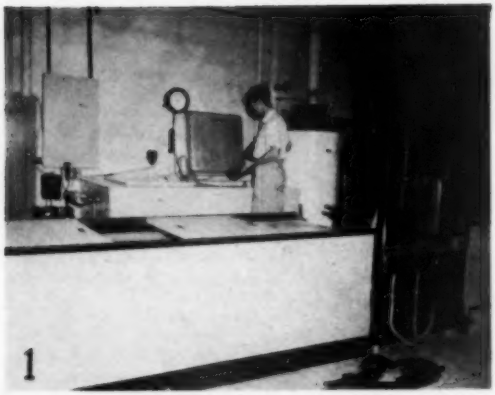
The laboratory's 300,000-lb. Southwork-Emery testing machine, which was purchased in 1928, has been modernized and made to do broader service. The ranges of the modernized machine are 300,000; 30,000; and 3,000 lbs., the low range being required in connection with evaluating the results of the freezing and thawing tests. The loads required for testing the standard 3- by 4- by 16-in. beams in flexure range from about 2,500 lbs. to as low as 200 lbs., depending on whether or not the specimens have been frozen and thawed, and on the extent of the damage done. Other improvements to the testing machine include motorizing the cross-head.

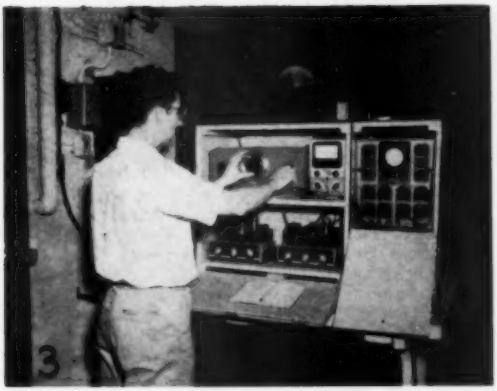
Another important adjunct of the laboratory is the moist-curing room in which specimens to be tested can be kept at constant temperature and humidity for as long a period as may be desired. Humidity and temperature are controlled automatically by means of a Taylor Fulscope, which also provides a continuous record chart showing the conditions inside the room.

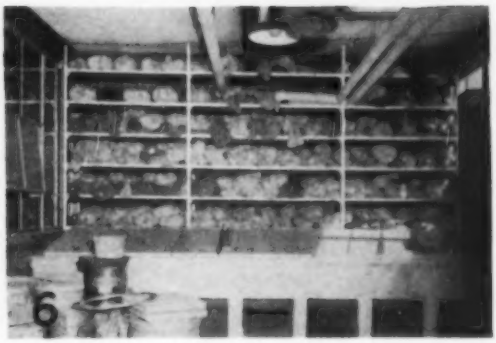
Dust- and noise-creating equipment in the new laboratory has been segregated in a separate room appropriately designated as the "noise room." Here the various testing screens, the Deval abrasion machine, the Los Angeles abrasion machine, and a new 4- by 6-in. Universal jaw crusher have been installed. The latter will be used to provide suitable sizes of coarse aggregate, and in reducing coarse aggregates to the finer sizes which are desirable in certain tests, particularly that for alkali reactivity.

Other items of new equipment include a Clipper saw for cutting concrete specimens, and two new concrete mixers, one donated by the Jaeger Machine Company and the other by the Concrete Transport Mixer Company. A new microscope and a new camera have also been purchased.

The new laboratory provides approximately the same amount of floor space as was available in the association's former quarters located in the Arts and Science Building on the University of Maryland campus. The arrangement, however, is much better adapted to the







1. A view of the manually-operated freezing and thawing equipment. These units, which permit only one cycle of freezing and thawing in 24 hours, have been supplemented by a new automatic machine with which as many as 9 or 10 cycles per day can be run. The equipment shown in the picture will be kept in service for comparative studies.

2. Forced-draft, mechanical convection electric-fired oven for drying specimens used in soundness tests.

3. Sonic apparatus used for determining the fundamental frequency of durability specimens as a means of arriving at the dynamic moduli of elasticity. The same procedure and equipment are employed with thermal test specimens.

4. The convection-type gas-fired oven used for drying aggregates in preparation for soundness tests. Thermostatic controls maintain temperatures within the limits of 220 to 230 deg. F. throughout the standard 30-hr. drying cycle.

5. The Whittemore strain gauge is here being used to measure the change in length of a beam which has just been removed from the hot tank. After this reading the specimen is placed in the cold tank, where the temperature drops from 140 deg. F. to 40 deg. F. This is an important part of the laboratory procedure in the study of disintegration due to thermal changes.

6. In a room adjoining the new laboratory there are seven 1-ton bins for storage of various types of aggregates, and two 5-ton bins for regularly-used stock aggregates. Various types of cement from many different mills are stored on the shelves above the bins.

Here the vertical comparator is being used to measure length changes of mortar bars.

function of the laboratory, and space for the storage of aggregates and cements is more conveniently located. The materials are stored in a separate room adjoining the laboratory. There are seven one-ton bins for the storage of various types of aggregate, and two 5-ton bins for storage of regularly used "stock" aggregates.

A special fund for making these improvements to research facilities was subscribed by member companies of the two associations upon the recommendation of a joint committee on research, under the chairmanship of A. W. Dann. An additional sum will be subscribed as a reserve fund for other new equipment, or for special research.

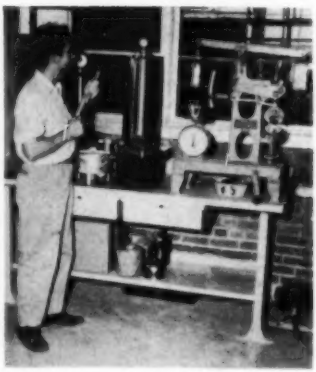
The research staff which will utilize these fine new facilities is headed by Stanton Walker, director of egineering of the two associations, and one of the nation's foremost authorities on concrete. Others on the staff are Delmar L. Bloem, assistant director of engineering; Edward J. Zeigler, associate research engineer; James F. Shook, assistant research engineer; and W. G. Mullen, graduate research fellow. Mr. Mullen, who was last year's honor graduate in civil engineering from Virginia Military Institute, is the appointee of the two-year Stephen Stepanian Fellowship sponsored by the National Ready Mixed Concrete Association. Two similar fellowships sponsored by the National Sand and Gravel Association are currently vacant.

The value of the laboratory's research and investigative work to the sponsoring industries has been tremendous. While it would be meaningless, and probably quite impossible, to estimate it in dollars, brief reference here to some of the current investigations may serve to suggest its scope. Studies are in progress on the performance of the many admixtures which have been developed to entrain air and otherwise benefit concrete. Work already done by the laboratory along this line has clearly indicated the need for more information regarding the merits of such materials. The effects of various air-entraining agents on the durability of concrete and on the performance of questionable aggregates are also being studied and compared.

In the new laboratory special provision has been made for investigating the chemical reactions which take place between certain constituents of the aggregates and the cements. Out of such studies it is hoped to develop corrective measures which will prevent harmful reactions even though the aggregates contain reactive constituents.

Reference has already been made to the new facilities for storing concrete in water and/or air at various temperatures. These will be of considerable help in further studies of the effects of thermal properties of concrete and its ingredients on concrete durability. This problem has been chosen as the subject for research under the Stephen Stepanian Fellowship.

Test methods are under constant



Determination of air content of concrete, using the Gray air meter. This view also shows the briquette testing mahcine.

scrutiny by the laboratory staff. Recent work along this line includes studies of the standad tests for mortar-making properties of fine aggregates, and of the sulphate tests for soundness of aggregates. In regard to the latter, progress is being made in identifying some of the factors which result in poor reproducibility.

Research activities of the National Sand and Gravel Association were inagurated in 1928 when a small laboratory was set up at the headquarters office in Washington, D. C. The facilities were moved to the University of Maryland campus in 1938, and in the same year the association's Research Foundation was created. The National Ready Mixed Concrete Association joined in the research program in 1944, sharing the same quarters and staff.

In January of this year the engineering divisions of the two associations compiled and published a list of the laboratory investigations conducted since 1928. In all, 119 series are covered, those conducted prior to 1945 being listed by title only, and the remainder, beginning with Series 56, with a brief summary of each. Results of most of the completed investigations have been published in one form or another. In some cases the results of several related investigations have been combined in one report, while in others one investigation has provided background information for several reports. In addition to these regular investigations, the laboratory staff has carried on perhaps an equal volume of miscellaneous and routine work which hasn't justified formal titling. The 23-page booklet also lists some 40 preliminary and exploratory investigations conducted for routine control purposes and to secure background for more comprehensive studies to be undertaken in the future.

The research activities of the two associations were consolidated about a year ago and placed under the general supervision of a seven-member joint committee. The present Joint Research Committee consists of E. K. Davison, R. K. Humphries, and D. D. Reynolds, representing the National Sand and Gravel Association, and Alex Foster Jr., Herbert G. Jahncke, and M. Eugene Sundt, representing the National Ready Mixed Concrete Association. Mr. Walker serves as the seventh member of the committee.

Information Circular 7523, *Laboratories That Make Fire Assays, Analyses, and Tests on Ores, Minerals, Metals, and Other Inorganic Substances*, prepared by Bertha R. Klahold, librarian at the Bureau's College Park, Md., Station, may be obtained free from the Bureau of Mines, Publications Section, 4800 Forbes Street, Pittsburgh 13, Pa. The bulletin should be identified by number and name.

TWO MEN of the INDUSTRY—CALLANAN and SNYDER

THE election of J. Reid Callanan to the presidency of the National Crushed Stone Association climaxed more than 30 years of service to the association and to the industry which it represents.

Mr. Callanan's interest in the N.C.S.A. dates back to 1918, when he attended the second annual meeting of the association while he was still in his army uniform. During the 30-odd intervening years he attended nearly every annual convention held by the association. In 1935 he was elected to the board of directors, and in 1949 he was elevated to the post of regional vice-president for the Eastern Section.

Mr. Callanan was born in 1895 near South Bethlehem, Albany County, N. Y. His father, Peter Callanan, founded the Callanan Road Improvement Co. (which Reid now heads) in 1883. Within a year after the company was incorporated (1895) Peter Callanan died, leaving a widow and six children.

After attending public schools during his early educational training, Reid was sent to Mohegan Lake School, where he was graduated in 1914. That fall he entered Princeton but withdrew shortly thereafter to study music in New York. Although Mr. Callanan now rarely plays the piano in public, he keeps up his interest in music through the Albany Symphony Orchestra, having served as president or chairman of its board since 1945. In 1947, he appeared as guest soloist with the Albany Symphony, playing Gershwin's "Rhapsody in Blue."

J. R. Callanan, N.C.S.A. president.

When World War I came along, Reid Callanan enlisted. He was discharged as captain of field artillery, serving in the 77th Division and also as an instructor at Camp Zachary Taylor, Louisville, Ky. When the war was over, he decided to give up his career as a pianist in favor of business and accordingly resumed his studies at Princeton.

J. Reid Callanan is president of the Callanan Road Improvement Company and president of the Callanan Slag & Materials Co., Inc., a concern owned jointly by the Republic Steel Corporation and the Callanan Road Improvement Co. Other organizations with which Mr. Callanan has been actively associated include the New York Crushed Stone Association, of which he was president in 1939-1940, and the National Slag Association, of which he is a director. He has been chairman, since 1947, of the Advisory Council Policyholders of the State Fund of New York, which is operated by the state as an insurance company, in the compensation insurance field. It writes more compensation insurance in New York State than all other insurance companies combined. Mr. Callanan is also the first president of the newly-organized Associated Limestone Producers of the Northeast, Inc. The organization was formed in 1949 and is composed of most of the producers of agricultural limestone in seven states.

HARRIS N. SYNDER, president of the National Sand & Gravel Association, began his career in the aggregate business back in 1906. Following his graduation from high school in that year, he went to work for The France Company, for whom, after a brief training period in the office, he started out on the road selling crushed stone. Later when The France Company formed a new slag company, Mr. Snyder was placed in charge of sales at the Detroit office.

In 1913, Harris N. Snyder and L. A. Beeghly organized the Buffalo Slag Company, with headquarters in Buffalo, N. Y. In 1929, this firm went into the sand and gravel business through the purchase of the J. E. Carroll Sand Company. Later the Hornell Gravel Corporation was acquired, which gave the company five sand and gravel pits. Through affiliated companies, the Buffalo Slag Co. is also engaged in the production of crushed stone, portland cement, rock wool, ready-mixed concrete, and in the production of application of asphaltic road mix.

Ever since 1929, when Buffalo Slag Co. went into the sand and gravel business, the company and Mr. Snyder have actively participated in and supported the National Sand and Gravel Association. Mr. Snyder firmly believes that close affiliation with a strong national trade association which aims through research to enlarge the quality and usefulness of the product, as well as to keep abreast of developments that affect business generally, is a vitally necessary supplement to sound management of a business.

At the present time Mr. Synder is vice-president and treasurer of the Buffalo Slag Co.; he has been general manager of that company ever since it was formed. In addition, he is president of the Federal Portland Cement Company, Inc., the Federal Crushed Stone Corporation, and the Hornell Gravel Corp. He serves as a director on the boards of the National Slag Association, the Portland Cement Association, Bituminous Products, Inc., the American Steamship Co., the Ellicott Square Company of Buffalo, and a number of others. He is also active in local and civic affairs and has held many offices in various organizations.

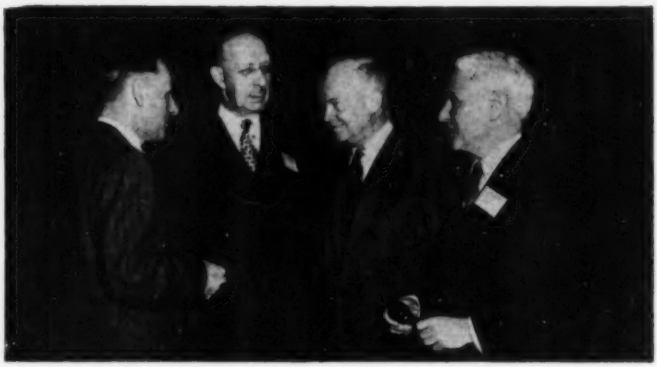
H. N. Snyder, N.S.G.A. president.

A.I.M.E. Meeting Sets New Records— R. M. Foose Heads Minerals Division

THE annual meeting of the American Institute of Mining and Metallurgical Engineers, which was held February 12-16, 1950, at the Hotel Statler, New York City, set a number of new records. A new high was set in the number and variety of technical papers, and there were more technical sessions. Each of the ten divisions of the institute held one or more sessions, and most of the time there were six or eight concurrent sessions. No official count of the attendance is yet available, but the estimated registration of 2100 for the first two days probably approached, if it did not exceed, any previous high. There were many persons in attendance from Canada and Latin America and some from foreign countries.

By WALTER E. TRAUFFER

The Industrial Minerals Division drew a large attendance, perhaps also a record, and on its program were more and better papers than ever before. Thirty-four papers, covering a wide range of subjects, were presented at the seven meetings of this division. In addition many talks were given at meetings of other divisions which were of interest to producers of industrial minerals. This was particularly true of the meetings of the Mining Subdivision, the Extractive Metallurgy Division and the Minerals Beneficiation Division. The writer was not able to cover all the pertinent meetings because some of them were concurrent, nor were copies of all papers available. In this coverage of the meetings, however, brief resumes are given of the addresses of most interest to our readers. All papers presented will be reprinted in full in *Mining Engineering* the official A.I.M.E. publication and in the *Proceedings* of the institute.



• General Dwight D. Eisenhower, speaker at the A.I.M.E. Welcoming Luncheon, with (left to right) J. L. Head, director; L. E. Young, outgoing president; and D. H. McLaughlin, newly-elected president of the A.I.M.E.

New Officers The newly-elected officers of the A.I.M.E. for 1950 are: Donald H. McLaughlin, president; Andrew Fletcher and Robert W. Thomas, vice-presidents; chairman of the Industrial Minerals Division, R. M. Foose; and chairman of the Minerals Beneficiation Division, Grover J. Holt. Edward H. Robie continues as secretary of the institute.

Mineral Resources As usual, there were presented before the Industrial Minerals Division a number of papers describing the minerals resources of various states. J. L. Stuckey of the Department of Conservation and Development of North Carolina, described the *Progress in Industrial Minerals of North Carolina.* In this state there are 300 different minerals, and rocks and industrial minerals are the chief source of mineral wealth. The greatest concentration of minerals-processing plants is in the pegmatite region in the mountain area of western North Carolina and the western part of the Piedmont plateau. This state produces 60 percent of the sheet mica output of this country, most of the primary residual kaolin, 35 percent of the feldspar, and 75 percent of the scrap mica and mica schist for grinding. Mr. Stuckey also mentioned the fact that the U. S. Bureau of Mines recently opened a Regional Laboratory at North Carolina State College in Raleigh for the investigation of metallic and nonmetallic minerals. The College, in cooperation with the T. V. A. and the North Carolina Department of Conservation and Development, also recently opened in Asheville a Minerals Research Laboratory for the concentration and utilization of the state's industrial minerals.

• Dr. H. A. Meyerhoff, outgoing chairman of the Industrial Minerals Division.

• R. M. Foose, new chairman of the Industrial Minerals Division.

The Nature, Value and Age Relations of Kansas Industrial Mineral Products was the topic of a paper by Earl K. Nixon, of the Kansas Geological Survey. In that state raw minerals annually contribute $362,000,000 or 15 percent of the wealth. Nonmetallics contribute $42,600,000 or 11 percent, coal 86 percent and metals only 3 percent. The chief nonmetals are crushed stone and agstone, sand and gravel, salt, gypsum and volcanic ash.

J. H. C. Martens, associate research specialist, Rutgers University, described *The Sands of New Jersey*. This state is one of the leading producers of industrial sand, the total of over 2,000,000 tons being mostly foundry and glass sands. This paper described the most important geological formations in the state and included brief descriptions of some of the more important plants.

In describing *Florida Kaolins and Modern Methods of Preparation* George J. Lane of the Edgar Plastic Kaolin Company said that the white-firing Florida kaolins possess certain superior properties that make them useful in ceramic whitewares. The extent of the proven kaolin deposits is not fully known to date. Hydraulic mining is used to win the clay from the deposits. Sand washing methods remove impurities and filter presses extract excess water and form the kaolin into cakes that can be readily handled. The various methods of drying used were also described.

Vermiculite Production in South Carolina was the subject of a paper by J. A. Kelley of the Southern Division of the Zonolite Company. *Limestones in Western North Carolina* were described by Willard Berry of the Department of Geology, Duke University. *The Foundry Sands of Ohio* was the title of a talk given by C. H. Bowen, of the Ohio State University Experiment Station. There were also papers on the alumina possibilities of the Columbia River Basin, and the mineral deposits in Montana pre-Beltian rocks.

• P. M. Tyler, Kensington, Md., one of the speakers on the Industrial Minerals Division program.

Dust Collection The subject of dust collection received considerable attention at these meetings. Presented before the Industrial Minerals Division was the paper *The Recent Calaveras Cement Company Dust Suit* by William Wallace Mein Jr. of the Calaveras Cement Company; this was the same paper presented before the 1949 meeting but brought up to date to include the latest developments. Ever since the company started producing cement at San Andreas, Calif., in 1926 it was faced with the problem of dust damage and paid large sums of money to land owners.

In 1938 Western Precipitation Corporation Cottrell electric precipitors were installed on the two kilns, and there were no more claims for dust damage until a third kiln was installed in 1946. Because of the post-war shortage it was impossible to obtain a new precipitator for this kiln immediately, and in April, 1949, a $120,000 damage suit came to trial before a jury of local ranchers and housewives. It was charged that the cement dust laid waste the vegetation and that cattle in the vicinity of the plant lost weight and their teeth due to "fluorine poisoning." The company admitted that there was some dust damage. The jury awarded the ranchers $7,500—little more than their trial expenses, but a month later the judge issued an injunction limiting the plant's flue dust discharge to 13 percent, using the method described in Western Precipitation's Bulletin WP 50. The land owners appealed this injunction as inadequate, maintaining that no dust should be deposited on their properties in quantities injurious to the land, vegetation or cattle.

A few days prior to June 30, the end of the grace period, a new precipitator on the third kiln went into operation, with Western Precipitation's assurance that it, operating in conjunction with the existing units, would have no difficulty in collecting 87 percent of the flue dust discharge. In July, 1949, the plaintiffs' motion for a new trial

• Grover Holt, new chairman of the Minerals Beneficiation Division, receiving the congratulations of his predecessor, S. J. Swainson of the American Cyanamid Co.

was denied by the court, but in the following month they filed an appeal in the case. "It is their contention that their own version of the injunction asking that the plant be prevented from discharging dust in injurious quantities should be the one adopted by the court. This would enable them at any time to allege excessive dust discharge and continually to harass the company with new claims for damages."

Three papers on dust collection were presented before meetings of the Extractive Metallurgy Division. The first of these was *The Fume and Dust Problem in Industry* by Harry V. Welch, chief chemist of the Western Precipitation Corporation, Los Angeles, Calif. In this paper he first mentioned the problems facing industry in general and then the specific problems of various metallic industries and of the cement and other nonmetallic minerals industries. He then outlined the effect of particle size on the

• E. J. Roberts, Dorr Company, who spoke before the Minerals Beneficiation Division.

• Attending the Minerals Beneficiation Division business meeting were F. W. McQuiston Jr., Atomic Energy Commission; Harlowe Hardinge, Hardinge Co.; and W. B. Stephenson, Allen-Sherman-Hoff Co.

efficiency of dust collection and the effect of dust and fumes in the community. Means and procedures for dust and fume collection were described, including scrubbers, filters, electrical precipitation, settling chambers, centrifugal collectors, etc. Mr. Welch did a thorough job of describing the problems and their solutions in the limited amount of time allotted to him and made many references to more detailed literature available on this subject.

How the Operation of a Cottrell Precipitator Is Affected by the Resistivity of the Collected Material was explained by Wayne T. Sproull, also of the Western Precipitation Corp. He discussed in a qualitative way the differences between the operation of a Cottrell precipitator when it is collecting a dust of high electrical resistivity as opposed to a dust of low resistivity. A description of the method of measuring the resistivity at various temperatures and humidities was followed by a discussion of the theory underlying the variation of dust resistivity with temperature and humidity. The paper closed with a discussion of several resistivity curves obtained from various samples of metallurgical fume.

In the discussion which followed it was brought out that the pocket type of precipitator is preferred by the cement industry, even if it is costlier, as it keeps entrained material out of the dust stream.

The last paper on dust collection, by Harold Danner of the Ultrasonic Corporation, told of the development of ultrasonic vibration and its applications to industry. Applied to the collection of dust these vibrations cause the extremely fine particles of dust to agglomerate, making them susceptible to mechanical collection.

Processing of Glass Sand Two papers were presented before the Industrial Minerals Division on the preparation of glass sand. Under the title *Production of Graded Glass Sand by Grinding and Classification*, M. M. Fine, metallurgist at the Rolla, Mo., branch of the Bureau of Mines, described a laboratory study of grinding and classification of silica sand, a satisfactory method of producing medium-fine specification sand and desired by producers of flint-glass containers. The procedure found most suitable consisted of ball-mill grinding and double classification, which gave a properly sized sand containing less iron than the feed.

Paul M. Tyler, consulting mineral technologist and economist of Kensington, Md., covered *Special Methods for the Beneficiation of Glass Sand*. He enumerated and described the various impurities found in such sand deposits and the amount which can be tolerated for various uses. The various methods for beneficiating this material which are in more or less common use were also described, together with approximate costs per ton for each method.

In conclusion Mr. Tyler said that the best method of beneficiating a given glass sand depends essentially upon the nature of the material and, more particularly, upon the mode of occurrence of the iron and other impurities. The simplest treatment is desliming with or without incidental grinding or scuffing to break up and disperse clay or other semicolloidal iron-bearing material so that they can be washed out in a suitable classifier. When the impurities are present as discrete particles or fine free minerals, standard mineral dressing techniques, such as gravity separation or froth flotation, are likely to be effective. When the impurities occur largely in the form of a stain or crust on the surfaces of the sand grains either leaching or attrition grinding is indicated.

Sink and Float *Trends in Practices and Costs of Sink-float Conditions of Mineral Beneficiation* was the title of a paper presented by H. F. Lynn of the Southwestern Engineering Company to stimulate interest in new applications for this process. He briefly described this method, which utilizes a finely-ground solid "media" suspended in a liquid medium. He also outlined the history of this process, which began about 1932 and was originally used for coal and metals. The American Cyanamid Company system, he said, was first introduced on the Iron Range in 1938. The separator is the heart of the system, but most of the cost is in the reclamation of the media. He presented a very complete study which pointed out the defects of the systems in use and made many definite suggestions for their improvement.

Milling Operations Milling operations at the Piney River, Va., ilmenite plant of the Calco Chemical Division of the American Cyanamid Company were described by C. E. Craven of that company. Test work was started there in 1941 and in 1944 also at the minerals dressing laboratory of American Cyanamid. In January, 1947, a new flotation plant replaced the old plant which used gravity concentration and dry magnetic separation. This plant was not adequate in certain departments, and these were altered from time to time using various types of equipment and methods. The final plant now operated has the following equipment in the order used: Marcy rod mill, 24 Humphrey spiral concentrators, a Dorr Duplex classifier, Hardinge ball mill, two Dorr bowl classifiers, 24 Fagergren flotation cells, an Akins classifier, eight M.&S. cells, a Dorr thickener and classifier, a Dorrco filter, a Louisville dryer, and Raymond mills. At the mine a bulldozer, a Dixie hammermill and a Dorr bowl classifier are used.

Minerals Beneficiation Division Many papers were presented at the meetings of the Minerals Beneficiation Division which were of direct or indirect interest to producers of nonmetallic minerals. One of these was *The Probability Theory of Wet Ball Milling and Its Application*, by Elliott J. Roberts, research director

of The Dorr Company. In this paper the theory was developed that the mesh tons ground through a given mesh per day in a wet ball mill is proportional to the percent plus the mesh in contact with the balls and the net power applied to the balls at this point. The effect of other variables, such as maximum size of feed, size of ball, and moisture were evaluated. According to Mr. Roberts, laboratory tests on various ores resulted in relative grindabilities ranging from 1 to 5; and correlation of the data with plant tests gave a "Standard Grindability Test" which may be used to determine mill sizes.

In *Freeport Uses a New Crushing Principle*, A. A. Gustafson of the Freeport Sulphur Company told of a new type of portable crusher. This crusher can be choke fed, and has low power requirements and negligible maintenance costs. At one of the company's operations two such crushers mounted on wheels are now operating over a portable conveyor truss. They are choke fed by a power shovel at the rate of 350 t.p.h. and reduce 1-ton chunks to 12-in. size. It is stated that this crusher can be used on sulphur, salt, potash, coal, clay, shale, some iron ores and probably harder materials.

Continuous countercurrent decantation calculations have always been a headache to the cyanide man and the chemical engineer because of the simultaneous equations involved. These are tedious to solve, and there is considerable opportunity for mathematical error. T. B. Counselman, manager of the Fluosolids Division of the Door Co., presented a shortcut method for making these calculations which he has been using for 20 years. Mr. Counselman also presented a paper on *Roasting and Calcining by Fluosolids*.

A Novel Pump for Coarse Gravel and Rocks was featured in a talk by George T. Bator, associate professor of Mining, University of Alabama. This pump, which was described in the September, 1949, issue of PIT AND QUARRY, is made by Thomas Foundries, Birmingham, Ala., and uses Ni-Hard wear-resisting metal. Two installations of this pump and the results obtained were described in this paper.

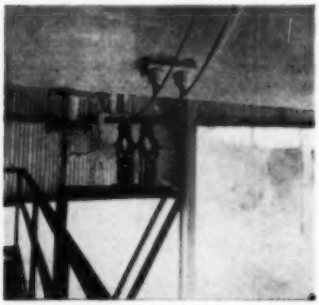
Two other papers presented before this division which were of unusual interest and covered their subjects very thoroughly are much too long to be covered here. Along with all other papers presented at these meetings, they will be published in the *Proceedings* of the A.I.M.E. at a later date. The descriptive titles of these papers are: *Conveyor Belt Care and Maintenance* by J. R. Thompson, manager, flat belting sales, The B. F. Goodrich Company; and *Design Considerations for Large Conveyor Belts* by J. W. Snavely, manager of engineering, Conveyor and Process Equipment Division, Chain Belt Company. *Controlling Long Distance Land Pumping* was described by W. B. Stephenson, Allen-Sherman-Hoff Company.

Mining Subdivision On the program of the Mining Subdivision were two papers of interest to nonmetallic mineral producers. One was *Millisecond Delay Detonators* by D. M. McFarland of the Atlas Powder Company. The other was a *Review of Progress in the Caving of Asbestos Ore*, by Gerald Sherman, consulting engineer for the Johnson's Company and the Canadian Johns - Manville Company. Mr. Sherman described and illustrated the caving methods practiced by the Johnson's Co. and the Asbestos Corp. The Canadian Johns-Manville Co., he said, is well along in preparations for caving and Bell Asbestos Mines, Ltd., will follow their example later.

Lehigh at Metaline Falls

(*From page* 59)

Coincident with the launching of the improvement program at Metaline Falls in 1947, Alfred W. Schaeffer came west to assume operating management of the plant and to supervise its rebuilding. Mr.



• View of the under side of the kiln, showing the method of mounting the thermocouple.

Schaeffer has been with the Lehigh organization since 1937, when he took his first job as a laboratory assistant at the Fogelsville plant. After 2½ years at Fogelsville, he was transferred to Alsen, N. Y., where he became assistant chemist, and later, chief chemist and plant engineer. Walter Viebrock is plant engineer.

In 1941, Lehigh erected a modern 7,500-bbl. storage and distributing plant at Spokane, and much of the output at Metaline Falls goes in bulk by rail to Spokane for re-shipment in bulk trucks, or for packing. Two modern Valve Bag 4-tube packing machines are used. Paul G. Hahn is district sales manager, maintaining offices in the Old National Bank Bldg., Spokane.

Washington News Letter

(*From page* 60)

make it easier for them to secure capital.

Of special interest in connection with the recent reports on the operations of the Federal Deposit Insurance Corporation is the finding that most of their work was directed not toward paying out losses where banks went under, but rather that they expended most of their efforts in keeping "troubled" banks in active operation. This was done by helping them reorganize or by arranging mergers with stronger institutions. The net result was that very few banks closed their doors and the Federal Deposit Insurance Corporation was thereby required to pay out very little to depositors.

Curiously enough the only voices raised in opposition to this increase in the amount of deposit insurance are those of some people who feel that if bank deposits become too safe the large depositors would become less vigilant in watching over the operations of the bank. The banks might in turn become unsafe.

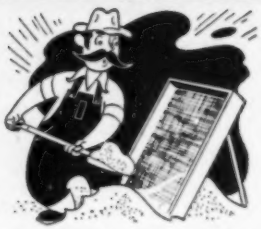
Progressive Operators

(*From page* 61)

and recover the much-needed fines, a steel sump, or tank, was built at the overflow and a 9½-in. Kimball-Krogh tailings pump was installed to pump the thin waste to a sand drag, where much additional fine sand is now being recovered.

Recently the company went into the ready-mix business on a relatively large scale, installing all-steel Noble batching plants at the plant near Los Banos and in neighboring Gustine. Both plants are utilizing bulk cement and have modern control features such as automatic weighing of the cement, meters for the measurement of mixing water, and multi-beam aggregate scales.

Screenings



by William M. Avery

FOR some months we've been gathering odd fragments of information about taxes. Our purpose seems to have been to obtain evidence in support of the widely-shared theory that most of the guys who dream up taxes are congenital idiots.

In a by-no-means exhaustive exploration we dredged up such choice items as the fact that the U. S. Government, up until a few years ago, collected a tax on brass knuckles.

We suppose they gave that one up on the grounds that it imposed undue hardships on people who were, after all, just collectors like themselves.

In Scalp Level Borough, Pa., there's a law that taxes men two dollars, and women only one dollar. Maybe that creates one issue, at any rate, on which the girls won't scream for equal rights.

Little Rock, Ark., has a tax on sliced watermelon, and in Hood River, Ore., there's a tax of $20 a week on jugglers. In Trenton, N. J., there's a tax on street pianos.

Uncle Sam is not above condoning illegal enterprises in his never-ending search for things to tax. He soaks operators of slot machines and pinball machines about $10,000,000 a year, with a lofty disregard for the fact that the contraptions are illegal in many states.

Since the Civil War the Internal Revenue Bureau has been paying private citizens for information on tax dodgers. The bill for such services in 1949 is said to have been over $400,000. A few years back they tossed an informer into the clink for his failure to pay income tax on reward money he had received.

Our final exhibit has to do with the word tax itself. It's supposed to have been derived from an old Latin word meaning "to touch sharply." For modern purposes the translation should be "to slug with a ball bat."

Feminine Viewpoint

ONE of the producers we talked to during the conventions told about delivering a load of ready-mixed concrete to a suburban home one afternoon. The driver asked the lady of the house where she wanted it placed. Her reply: "Just dump it on the garage floor. My husband will put it where he wants it in the morning."

Apparently the average suburban housewife still thinks that "set" is uniquely a result of overbidding a bridge hand.

In the Bag

GUEST celebrities on a recent B. F. Goodrich television show were asked how long they thought it would take a man to punch his way out of a paper bag. Their guesses ranged from 10 seconds to a minute. Then a performer was placed in one of Union Bag & Paper Corporation's Multiwall bags

and instructed to punch his way out. When the broadcast ended 20 minutes later he was still slugging away.

The accompanying photograph shows Max Baer and Maxie Rosenbloom, two of the celebrities who appeared on the broadcast, with the bag that was used. Obviously, if Mr. Baer or Mr. Rosenbloom had been used for the actual demonstration, it would have encouraged some one to point out that even in his prime neither of these ring gladiators could punch his way out of a paper bag.

Alas Poor Frontinus!

WE'VE received an interesting letter from William J. Reardon, president of Reardon Industries, Inc., telling about his recent trip through a number of European countries to observe developments in the concrete field. In Italy he ran across a treatise on the subject of masonry work which was written in the year 97 A.D. by Sextus Julius Frontinus, water commissioner of the city of Rome.

Apparently they had their troubles with labor even in that distant era, for Frontinus winds up with this wry comment, which could just as well have been written yesterday: "All parts of the work need to be done exactly according to the rules of the art, which all of the workmen know, but few observe." The Brick and Clay Workers Union was probably just as tough to deal with in 97 A.D. as it is today.

Numerology

THE paving engineer of a Midwestern metropolis has announced that so far this winter eight trillion three hundred billion grains of sand had been spread on the city's thoroughfares to reduce skid hazards. With the public conditioned to cosmic figures in connection with the national budget, it would obviously be a waste of breath to say that 8,000 tons of sand had been spread. In a few more years he may have to figure it out in molecules in order to attract attention.

How to Get the Most out of Lubrication

another P-Q exclusive

THE pit and quarry industry is built around expensive investments in especially-designed machines and continuous manufacturing processes. The oils and greases purchased for the lubrication of these machines are the product of costly and specialized research and refining. Wonderful machines and wonderful lubricants to give these machines a full productive life. But what happens?

First, the greater part of the responsibility for accomplishing effective lubrication is put in the hands of the man who carries a grease gun or oil can. Often labeled a "grease monkey", he is most likely to be one cut above a floor-sweeper, usually just a "flunky". Seldom will a man stay long in that job if he has capabilities for anything better. Employer and employee all too often rate the job at the bottom of the employment ladder.

Yet the oiler-man has a very great responsibility—one of the most responsible jobs in the operations end of the business. He may or may not see that the right oil or grease is applied at the right time at the right place on the machines he lubricates. The chance for error is considerable, and gradual or sporadic wear of machine parts due to improper lubrication results. The investment in machines and production suffers.

Second, in many large as well as small operations, the business of lubrication is made the responsibility of too many people. That which then becomes the business of too many men becomes the responsibility of none, and lubrication carry-on again suffers.

Therefore, in the face of these two facts, and because the pit and quarry industries have a constant need for stepped-up preventive maintenance, lowered lubrication costs, and over-all effective lubrication results, a practical plan for getting the most out of the lubricants purchased is essential. By means of such a plan management will have a workable program for seeing that every bearing, cylinder, gear, and hydraulic system on all machines receives proper lubrication.

In the development of such a program the way has already been charted by the experience of many plants and lubrication engineers. The program is developed on the commonsense principle that the potentialities of the best lubricant can never be realized until the "human element" in its use is trained and properly directed.

Experience in a number of cases —involving large as well as small operations—shows that these essentials of good management should be followed: the objectives of lubrication must be determined, procedures for obtaining correct lubrication arranged, and responsibility for getting the job done established.

Considering the specialized aspects of the pit and quarry operation, as well as the highly-specialized business of industrial lubrication, it is only natural that the most nearly complete program for maximum lubrication benefits can be obtained when a healthy atmosphere of cooperation between plant management and oil supplier exists.

To this end, the experience of recent years indicates that three things should be done by the plant management.

1. There must be a decision to stress the importance of lubrication and directly support a planned program for more lubrication benefits. This serves to over-come one of the great weaknesses surrounding the lubrication carry-on in any organization. It lifts the lubrication activity into a special lets-do-something-about-it class.

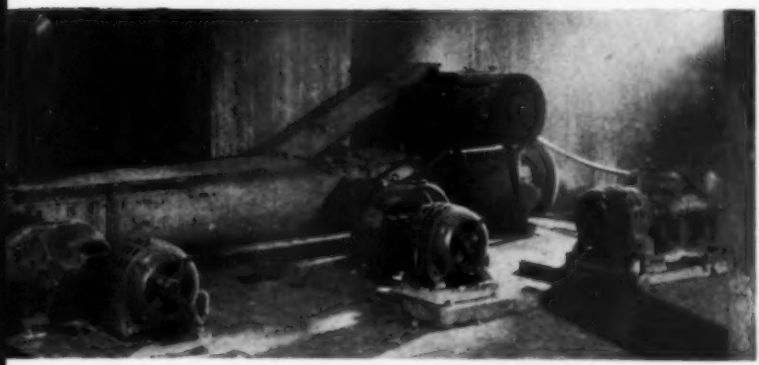
2. There must be a working partnership with one supplier of lubricants. Because a big result is desired, it is good business to put all the eggs in one basket. Then it is worthwhile for the supplier to render a full order of lubrication service. Choose a company which has a full line of quality products and a thoroughly competent staff of skilled and practical lubrication engineers.

3. Make arrangements so that the working partnership will be continuous and mutually advantageous. No great lubrication result can be obtained without a pooling of the plant staff's knowledge of its own machines and operating conditions with the oil supplier's special knowledge of lubricants and methods of improving the selection and use of lubricants.

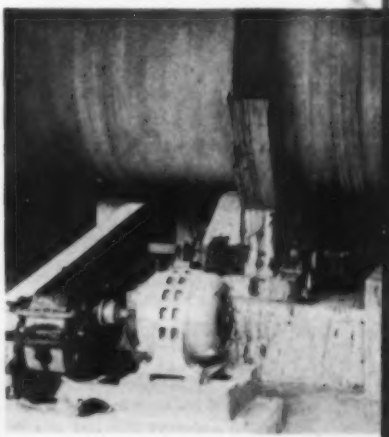
The plan for getting the most out of lubrication—the most in terms of less money for repairs, more continous production, and lower overall lubrication costs — includes these four steps:

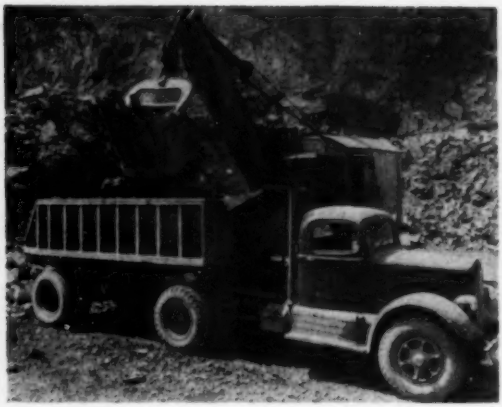
Step 1—*Get the facts.* Have the oil company's lubrication engineer do an engineering consultation job on all phases of lubrication in your

• Get the facts on the lubrication of every piece of equipment, and neglect none.

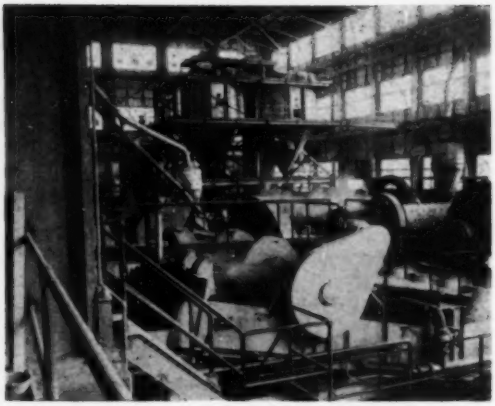


• Organize lubrication procedures so that not one bearing, cylinder, or gear lacks proper lubrication.





• Establish responsibility for lubrication, so that every piece of equipment receives attention.



• Evaluate the lubrication results at periodic intervals and make plans for improvement.

plant or operation. This consultation job to take the form of a lubrication study of all your equipment in cooperation with your own personnel. The study should include all operating factors and practices related to or influenced by lubrication.

Such a lubrication study, if properly made, will include facts on production losses and maintenance expense attributable to your present lubrication carry-on. It will reveal the details of how lubrication is handled throughout the plant or at isolated locations where lubrication is carried on by one or more individuals. The study should start with the way lubricants are received and stored. It should deal with practices followed in putting the lubricants into the machines; the lubricating devices used; the best way to combat the abrasive influence of dirt and dust, which is the scourge of machine lubrication in pit and quarry operations; how to obtain correct lubrication in both summer and winter; how to clean and fill large circulation systems; and how to improve machine design for better and less expensive lubrication. The facts revealed by such a study will then provide management with the basis for developing the second step in a program for improved lubrication.

Step 2—*Organize lubrication procedures.* Based on the facts uncovered in the lubrication study made by the lubrication engineer, it is then possible to put maximum order in lubrication's household. It can readily and easily be determined how many and what kind of lubricants are necessary to lubricate correctly all parts of every piece of machinery. Usually the number of brands will be very few inasmuch as a skillful engineer will tell you how to make practical compromises. His lubrication recommendations for each machine will, of course, be governed by a knowledge of what the lubrication study revealed, the past experience of your personnel, the experience and recommendations of the machine builder, his company's intimate knowledge of lubricants, and his own good horse sense developed through lubrication experience outside your plant.

A record of each lubrication recommendation, giving the name of the lubricant and its frequency of application, for every bearing, cylinder and gear on all machines, will then be available in chart form. These recommendations, which the lubrication engineer will provide, will serve as guides. Such charts form the keystone of correct lubrication procedures.

A further development of outlined procedures deals with the men who apply the lubricants, as well as the way they apply them. Oilers or machine operators charged with oiling responsibilities should be furnished with a copy of all charts of recommendations and should be given-on-the-job or near-the-job training in the following: good lubrication practices; the importance of oiling; the importance of reporting the need for preventive maintenance possibilities discovered during their work; and the need for periodic discussion of lubrication results and lubrication procedure with their superiors or the lubrication engineer. Even in small pit and quarry operation the prevention of one bearing failure due to indifferent or improper oiling procedures may be worth a considerable part of the year's oil bill.

The time when "flunkies" are selected for the oiling job and given a roving assignment with an oil can is nearing an end. To protect the investment in machines, management is increasingly realizing that an oiler can become a most valuable set of eyes and ears. Oilers get around; they see more parts of every machine every day than anyone else. Properly trained, they can spot mechanical trouble. Nipping such troubles in the bud will prevent their growth into serious proportions.

The establishment of lubrication procedures, however, should not stop with charts of recommendations, the reduction of the number of brands of oils and greases used, the time to apply oils and greases to each machine part, or stepped-up preventive maintenance. Lubrication procedures should also include arrangements for a clean and protected place to store oils and greases. Depending on the size of the pit, quarry, or plant operation, oil storage arrangements may range from a separate building to a simple enclosure in the corner of the plant garage or some other building. Space can nearly always be found. The point is—oils are delivered in clean, dust-proof containers. They should be kept that way for the protection of each machine element until ready for use. Moreover, oil cans, grease guns, and other lubricating equipment must be kept clean and properly identified to minimize lubrication mistakes.

Step 3—*Establish responsibility for lubrication.* This is necessary because lubrication, like any other detail in plant operation, will not shift for itself. Supervision of lubrication needs to be made the business of *one individual.* It need be nothing more than a part-time assignment in most plants or operations. Nonetheless, the specific detailing of lu-

(*Continued on page* 86)

"Operation Rugged"

• Plant of the Lockport Slag Corp., showing plant hopper, picker stand, conveyor network, crushing and screening structure, storage bin housing, and fines bin.

BY

HAROLD R. DRIMILLA

Crushing Plant at Lockport, Illinois, Works High-Iron-Content Slag Deposit At Old Steel Mill Site to Produce Over 200 Tons of Ballast Per Hour

another ON THE SPOT report

INVOLVING digging and crushing operations which bid fair to be among the most rugged on the American continent, the Lockport Slag Corporation is turning out railroad ballast for the Atchison, Topeka and Santa Fe Railway Company at the impressive top hourly rate of 250 tons, while maintaining a consistent average of over 200 tons. The problem which this plant is encountering in the abrasive nature of the deposit can be understood to a great extent in view of the fact that it is located on the site of the old Carnegie-Illinois Steel Works at Lockport, Ill. The latter suspended operations about 1932, leaving in its wake huge quantities of slag with an extremely heavy iron content. The extent of this condition is such that it poses an outright challenge to the sturdiness of recovery and crushing equipment and exacts considerable toll on the endurance of the men operating the machines.

Since the suspension of the steel works, two companies have undertaken the job of crushing this slag for ballast. The first was the Illinois Slag and Ballast Company, which was active from the middle to the

• Crawler shovel loading rear-dump truck in quarry. Shovel-equipped tractor is used to assist in loading and to clean up quarry floor.

• Above: Slag containing huge chunks of iron is unloaded into plant hopper. Larger pieces of iron are removed from the conveyor belt by a picker, stationed as shown. A magnetic pulley is used on the recirculating belt.

• Left: E. DeLong, plant superintendent, and A. C. Hextell, corporation president.

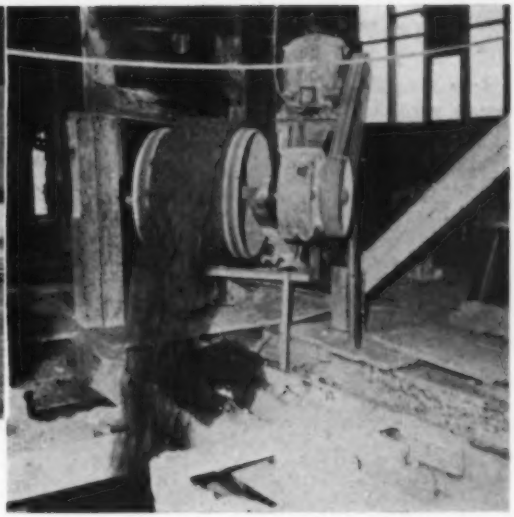
• Below: A view of the twin triple-deck scalping screens, with the storage bin housing in rear. The chutes in foreground feed the recirculating belt conveyor.

late 1930's. During an ensuing period of almost ten years the deposit remained idle. In March of 1948 the Lockport Slag Corp. took over.

Comprising 44 acres in all, the grounds are situated immediately west of the ancient Illinois-Michigan Canal on the western outskirts of Lockport. Their proximity to the A. T. & S. F. tracks is ideal, considering the arrangement under which the plant's entire output is sold to that railway company for ballast on its Illinois-Missouri division. The plant entrance is located on the eastern side of the area, toward the canal, and the all-weather dirt road by which it is served injects a touch of historic interest to the surroundings. This road is a remnant of the canal's mule path, over which in former days these beasts of burden towed a steady traffic of barges to and from Chicago and other points along its course.

Since the raw material is all above ground, no stripping is done at the quarry. Reclaiming is accomplished with a No. 89 Northwest 2½-cu. yd.-capacity machine equipped with a 2-cu. yd. bucket. The hardness and abrasive character of the slag, containing, as it does, massive chunks of iron, is such that it has been found necessary to change teeth on the bucket as many as four times a day under conditions of maximum severity. One man is constantly occupied re-pointing teeth. Using a 1⅛-in. cable on the shovel, the maximum length of cable service has proved to be 10 days, with an average of 8 or 9 days. Two men alternate as operators to relieve the strain under which they work. In addition, a "Caterpillar" Traxcavator-equipped D-7 is used to assist in loading and for cleaning up surplus material.

Three 10-ton International D-60 6-wheel rear-dump trucks haul the raw slag on an average of 600 to 700 ft. over a dirt road to the plant hopper. From the hopper, which is of approximately 10-ton capacity, with grizzlies set at 16 by 18 in., material is dropped onto an Austin-Western 9-ft. by 42-in. apron feeder operated from a 5-hp., 2-speed electric motor. The feeder discharges the slag onto a 36-in. by 20-ft. belt conveyor leading to the chute of the breaker. In order to prevent jamming at the crushing stage by large pieces of iron ore, ranging from approximately 40 to 70 lbs. in weight, which sometimes escape through the grizzlies, a picker



• Above: A flat-bed truck, weighted down with buttons, is used to move railway cars in the plant area.

• Right: The end of the conveyor network, where ballast is dropped into storage bins below.

is stationed on a platform which places him chest high beside the belt. From this position he can easily remove the metal chunks. He controls the apron feeder and conveyor, and in cases of emergency, can control the breaker. A 5-hp. electric motor drives the belt conveyor, which, like the others throughout the plant, is of Austin-Western manufacture, utilizing Raybestos-Manhattan belting; it is operated through American Pulley gear reducers.

The breaker is a New Holland 3030 double impeller breaker, with openings set at 1½ in. The impellers are accordingly set at 1½ in. and rotate at 675 r.p.m. Power is supplied by two General Electric 5-hp. motors. Despite the presence of the picker at the belt from the hopper, an occasional chunk of iron, weighing up to 40 lbs., falls into the breaker, which thus far has suffered no apparent effects, outside of shearing of the safety pins. Replacement of these requires about 10 minutes. Resultant wear on the impeller bars under the rugged conditions encountered here is, obviously, well above normal. To offset this, a night worker rebuilds the worn spots on the bars, using a 300-amp. Lincoln electric welder and Stutz-Sickles manganese rods. Maintenance costs for the crushing stage average about 2½ cents per ton, a figure which the owner views as highly economical, considering the nature of the operation.

Material discharged from the breaker is taken on a 30-in. by 84-ft. belt conveyor, from which it is split fed to two 4- by 12-ft. triple-deck Seco screens powered by a 10-hp. electric motor. Material retained on the 1½-in. top decks is recirculated to the breaker on a 24-in. by 60-ft. return belt equipped with a Dings magnetic pulley and driven by a 7½-hp. electric motor. Metal removed by the pulley is chuted off into a truck which hauls it away when full. The metal removed here, plus that from the picker belt, amounts to 4 or 5 tons per day and at times runs even higher.

All material passing 1½ in. and retained on the second and third decks is carried on a 24-in. by 40-ft. belt conveyor to the ballast storage bin. The middle deck, with ¾-in. openings, is used as a carry-deck to take the load off the lower deck. Fines are spurred off to a 30-cu. yd. steel truck-loading bin on an 18-in. by 84-ft. belt conveyor. This material is hauled away at irregular intervals for use in road and driveway construction and is also used for maintenance of intra-plant roads.

The ballast storage bin is 50 square feet in area and is divided into 9 equal compartments of 18 ft. depth. Each compartment has two openings for loading railroad cars which come in under the bin on three sets of tracks. A Mack MJU 10-ton, 4-wheel-drive flat-bottom truck is used to move the cars in the plant area, at the edge of which the A. T. & S. F. Ry. takes over. The truck is weighted down with buttons—huge chunks of iron and slag accumulated during the days of the steel mill operation as residue from the pour. Ordinarily the truck pulls three loaded cars and whatever empties are behind them. The best loading recorded in one day totaled 34 cars. The average loading is about 27 cars, each approximately 65 tons. There is approximately 6,300 ft. of track on the plant property, serviced either by A. T. & S. F. or E. J. & E railways.

The plant operates exclusively on commercial electric power, which comes in on high tension lines at 23,000 v. and is reduced to 449 v. The master switch is equipped with automatic overload and is mounted on the wall of a well sheltered section in the bottom of the ballast bin housing. From here cables run to the plant power house in an old semi-trailer, centrally located near

(*Continued on page 86*)

• An interior view of the powerhouse, showing the switch equipment through which power is distributed to various machinery components.

Report on Current Labor Developments

More Wage-Hour Regulations

By S. HERBERT UNTERBERGER
Director of Research
Labor Relations Information Bureau
Washington, D. C.

NOW that the new Wage and Hour Law is in actual operation, new problems are arising every day as to its meaning and interpretation. Some employers are taking advantage of the opportunity to receive official clarifications of the law as it affects their own problems. This can be done by presenting the problem either to the local office of the Wage and Hour Administration or directly to the Wage and Hour administrator in Washington. In response the administrator will generally provide an official opinion which an employer may rely upon. These opinions are frequently published and throw much light on what practices are and what practices are not in conformity with the new Wage and Hour Law.

The new law, of course, requires a minimum 75-cent wage. Almost immediately the question arose as to how this requirement is to be applied to employees working on a piece rate or incentive basis. Depending on how hard they work, some employees may earn less than 75 cents during some hours and more than 75 cents during other hours. In that connection the following question was posed to the administrator: "Is it necessary that employees working under piece rate or incentive plans be paid 75 cents for *each* hour worked, or is it necessary only that their weekly earnings should *average* 75 cents an hour?"

In answering this question the Wage and Hour administrator provided a complete analysis of the application of the 75-cent minimum wage to four possible situations. His analysis ran as follows:

Situation 1—An employee is employed solely on an hourly rate basis. In this case the administrator stated that the employee must be paid at least 75 cents for *each* hour worked. Payments of 50 cents an hour for half the hours worked in a work week and $1.00 an hour for the other half would not satisfy the minimum wage requirements of the Act, even though this averaged 75 cents an hour. Here the administrator said it is possible to apply a 75-cents-an-hour rule to each hour separately and that is the way it is going to be applied.

Situation 2—An employee is employed solely on an incentive or piece rate basis. Here the Wage and Hour administrator ruled that he would regard it as compliance with the act if the employee was paid a sufficient amount in any work week to yield an *average* of 75 cents an hour. The basis for his ruling was that under an incentive or piece rate system it is really not possible to differentiate the earnings made in each hour separately and hence the best measure that could be applied would be a measure that required an average earning at least as high as the minimum requirement of the law.

Situation 3—An employee is employed at incentive or piece rates for certain hours of the week and at hourly rates for the balance of the hours in that work week. Here the administrator ruled that for the time that the employee works at incentive or piece rates he must be paid a sufficient amount to yield an average of 75 cents per hour. For the time he works at hourly rates he must be paid at least 75 cents for each of the hours worked. This is obviously the application of each of the two rules developed above. While this appears to be quite a complicated requirement and one that may at times be difficult to live up to, the administrator stated that he believed that this requirement could be met without undue hardship.

Situation 4—An employee is employed at a combination of hourly rates and incentive or piece rates for the same hours of work. This will occur when an incentive bonus is superimposed upon an hourly rate or a piece rate is coupled with a minimum hourly guarantee. Here the administrator ruled that if the employer is to be in compliance with the new Wage and Hour Law, he must *guarantee* the employee an average hourly earning of at least 75 cents an hour.

Federal Contractors Subject to State Labor Laws

Employers in the pit and quarry industries who are working on federal contracts, such as public buildings jobs or road jobs, will be interested in a recent decision of a Wisconsin Circuit Court. In a case which came before that court an employer working on a federal building in Wisconsin argued that he was not covered by the Wisconsin Labor Law because he regarded himself as an agent of the federal government. The federal government, of course, would not be subject to a state law.

This contractor ran afoul of the state law because he discharged an employee in compliance with the demand of a labor union. The discharge was demanded because the employee had refused to join that union. This constituted a discriminatory act upon the part of the employer and he was taken before the Wisconsin Employment Relations Board. That board ordered him to reinstate the employee with back pay. The state court ruled that the board had authority for this action.

FEPC

The only piece of labor legislation that has so far passed either house of the Congress this session is the so-called Fair Employment Practice Bill. This was approved by the House of Representatives after a strenuous fight. It is regarded by the exponents of fair employment practice as a watered-down and probably ineffective piece of legislation to accomplish their results. It is likely that legislation at least this strong and perhaps stronger may pass the Senate at this session. Inspection of this legislation indicates that even though it has little in the way of teeth, it may nevertheless create a substantial problem for employers. It is true that the legislation carries no penalties against employers who may discriminate against workers because of union membership, race, creed, or color. Nevertheless, the activities required of the Fair Employment Practice Commission which would be established by this law could prove to be far more effective than is generally regarded to be the case. According to this bill the Fair Employment Practice Commission could make studies of discrimination and of the best methods for eliminating it. It could also formulate policies for the elimination of discrimination. It could publish and disseminate reports. It could receive complaints and it could make specific and detailed recommendations to the interested parties in any case as to the ways and means of eliminating discrimination.

In making its investigations the commission or its authorized agents will in accordance with this law have the right to examine or copy any evidence of any person relating to any investigation, proceeding or hearing. The commission will have the power to issue subpoenas and require the attendance and testimony of wit-

(Continued on page 86)

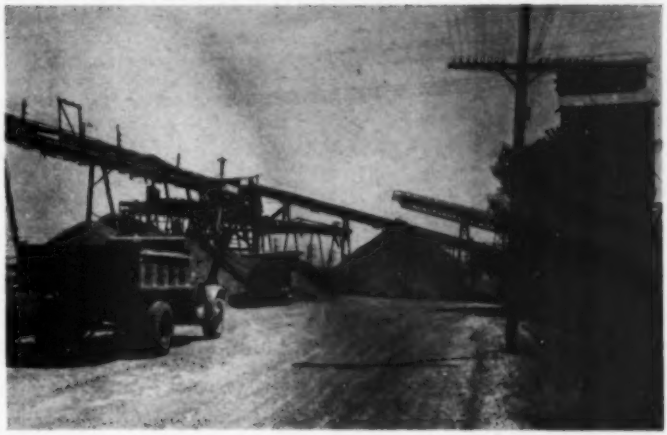
Reno Concern Parallels City's Growth Through Expansion and Modernization

FOR more than 30 years the firm of Smith-Petersen & Company has been the sole commercial producer of sand and gravel in Reno, Nev. It had the foresight to expand its production facilities to keep

By HARRY F. UTLEY

pace with—if not a step ahead of—the demand as the city mushroomed in growth. A little more than a year ago it completed its latest improvement, the erection of a new washing-and-screening plant. It continues to supply considerable quantities of crusher-run material for street and highway base-course construction. The present capacity of the plant is about 125 t.p.h.

Originally the plant was located west of the city on the Truckee River. In 1926, seeking a better deposit, it was moved to a new location on the river on the opposite (east) side of the downtown section. Several years ago this river deposit, too, neared depletion, and test borings led to the establishment of new pits in extensive glacial deposits from ½ to 1½ miles distant. The processing equipment was not moved, however, because of its strategic location from a delivery standpoint, since its best customer, a ready-mixed concrete plant, had risen alongside.



• Scene at Smith-Peterson & Company's plant at Reno, Nev. At the left is the tripper-equipped storage belt; the wash plant and the office are at the right.

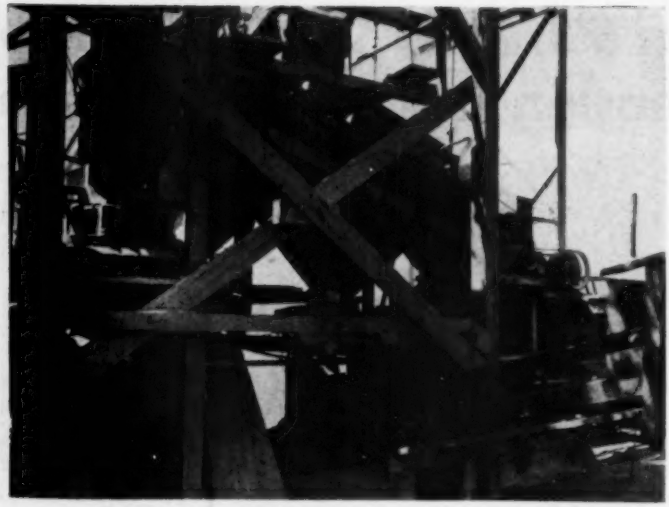
The pit run material is now trucked over to the plant in the company's fleet of ten dump trucks, six 7½-cu. yd. Sterlings, and four 5-cu. yd. Fords. This equipment is used both for bringing in the raw material and delivering the finished products.

The trucks from the pit discharge to a 15-cu. yd. hopper which feeds a 24-in. by 175-ft. conveyor leading up to the road-rock plant. Grizzly bars above the hopper opening take out the plus 3-in. boulders which go through a Farrel-Bacon 42- by 30-in. primary jaw crusher before joining the grizzly throughs on the conveyor. The road-rock plant equipment includes a Tyler-Niagara 4- by 8-ft. triple-deck screen, a Cedarapids 18- by 30-in. double-roll crusher, and a Symons 3-ft. cone. When unwashed crusher-run base material is being produced, all the material coming up the main belt is processed solely for this purpose, top size usually being 1½-in., with the silt and clay included for their binding properties. Likewise, when washed aggregates are in production, all the material is utilized for this purpose alone and no road rock is turned out. The road rock (crusher run) is stockpiled in a single large pile by a 220-ft. stacker belt and is loaded out by shovels and a Barber-Greene bucket loader.

• A truck from the pit, ready to discharge its load to the primary crusher.

When making washed gravel and sand, the 1½-in. gravel scalped off the top deck of the screen is broken down by the cone crusher, and the product, along with the finer material, is fed to a 24-in. by 375-ft. belt conveyor which runs up to the top of the new washing-and-classifying plant. This plant, incidentally, was built over and alongside the old washing unit, so that production was in no whit hampered during its erection.

At this stage the raw material re-



• The road-rock plant, showing the cone crusher (left), screen (center), and roll crusher (right).

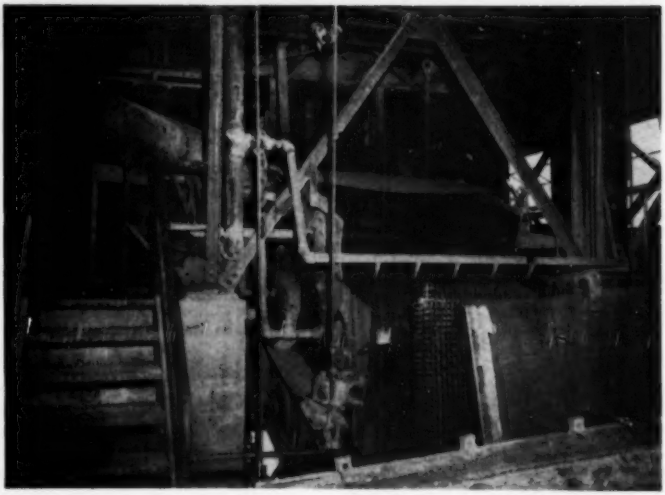
quires no further reduction, its maximum size being 1½ in. The initial scouring is being done somewhat experimentally by a pair of jigs. Their capacity is limited, however, and at times they bottle-neck production. Nor have they been of special value in making a preliminary separation as was hoped. Consequently, the management has definitely decided to replace them with a long, revolving scrubber.

The first screen, a Tyler-Niagara 5- by 10-ft. triple-deck unit equipped with sprays, washes and sizes the three top sizes of gravel—1½- to ¾-in.; ¾- to ⅜-in.; and ⅜- to ¼-in. The throughs pass to a Tyler-Niagara 4- by 10-ft. double-deck unit where the lower deck makes the preliminary separation of concrete and masons' sand. Final processing of the sand is done by a pair of Wemco 50-in. screws.

The sand is stockpiled in the open by two stacker belts. The gravel drops into the compartments of a 330-ton bin below. Gates from the four bin compartments feed a conveyor on which the various sizes can be blended for delivery to the 18-in. by 500-ft. elevated storage belt. The storage belt runs in a straight line for its entire 500 ft. and is equipped with two trippers which build up eight piles of straight and blended gravels. Recovery from the piles is by power shovels which load delivery trucks or open-top cars on a Southern Pacific Railroad spur track. For the most part, the plant is now of steel and concrete construction, and the remaining timber structures are to be replaced with permanent members within the next year or so.

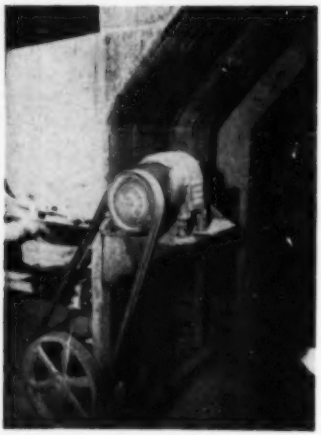
A Fairbanks-Morse 10-in. pump brings up water for washing purposes from a well 356 ft. deep. Waste is flumed to a settling pond and the water is re-used, the total supply approaching 1,000 g.p.m. Electricity is purchased from the Sierra Pacific Power Co.

Plant management is in the capable hands of Frank Kornmayer, who succeeded his father in that capacity after he passed away in 1940. His work, however, was interrupted by World War II, during which he spent three years in the engineering corps of the U. S. Army, 28 months of it in overseas duty. Shortly after his return to civilian life, he was elected president of the concern.



• Above: The triple-deck spray-equipped screen which washes and classifies the gravel in the new wash plant.

• Twin 50-in. screws which accomplish the final processing of the sand.



• Left: The first pass of the material in the washing plant is being done experimentally by these two jigs.

Allied Industries Represented at Pennsylvania Stone Producers' Meeting

THE Pennsylvania Stone Producers Association held its annual meeting on February 8 and 9, 1950, in the Hotel Penn-Harris, Harrisburg, Pa. The stone producers acted as hosts for the fourth consecutive year to the aggregate, construction, and allied industries. The program was designed to afford the officials of the Pennsylvania Department of Highways and the Pennsylvania Turnpike Commission an opportunity to present their 1950 construction and maintenance requirements. It also contained topics on the amended Wage & Hour Law as well as on the general economic situation which industry is facing.

The following officers were unanimously elected to serve for the ensuing year: president, T. C. McPoyle (The John T. Dyer Quarry Company); vice-president, Paul Detwiler (New Enterprise Stone & Lime Company); treasurer, H. M. Binkley (Binkley Bros., Inc.); and secretary, W. H. Fehr (Berks Products Corporation).

The following directors were also elected for 1950: Western Section, Lewis M. Nauss (Carbon Limestone Company) and Robert B. Garman (Tyrone Lime & Stone Co.); Central Section, Paul Walker (Chambersburg Stone Co.) and F. I. Narehood (Narehood Bros.); Eastern Section, J. P. Peacock (Bethlehem Steel Company) and J. C. Showalter (Showalter Quarry).

The board of directors re-elected H. H. Wagner, Harrisburg, Pa., as general manager for his fifteenth consecutive year.

Ray F. Smock, secretary of the Pennsylvania Department of Highways, complimented the group on the fine spirit of cooperation which made possible the largest highway maintenance and construction program ever completed by any state in any year. He spoke optimistically of the program for 1950 and stated that, from all indications, it will exceed last year's program.

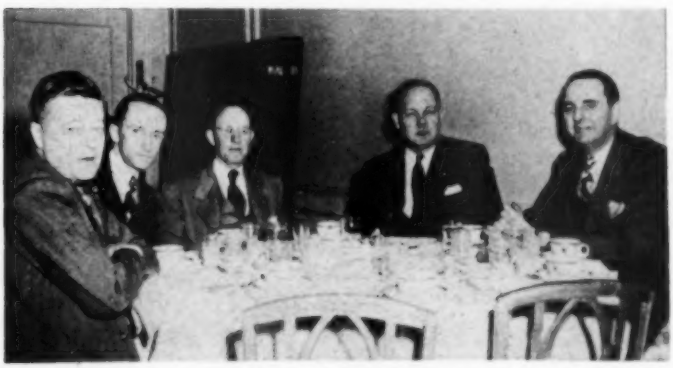
C. H. Buckfus, assistant chief engineer, Department of Highways, presented the 1950 materials requirements for departmental construction, reconstruction, and maintenance purposes. These figures were made available by counties and indicated that a total of 1,305,634 tons of bituminous concrete, 3,113,066 barrels of cement, 1,383,005 tons of sand, 31,765 tons of reinforcing steel, 37,656,873 gallons of bituminous material, and 8,600,488 tons of coarse aggregate would be required for highway department work in 1950.

E. L. Schmidt, chief engineer of the Highway Department, spoke on the interregional system, and stated briefly that it was almost impossible to extend full cooperation in carrying out the interregional plan, as the Pennsylvania Department of Highways developed its construction program on a basis of traffic volume and actual needs, rather than as connecting links between states. He explained that if his department were to follow the interregional plan, most of the money would be expended in carrying out the plan, with the result that the actual local highway needs would suffer from lack of funds.

• J. K. Scott (Easton), C. T. Johnson (Wilkes-Barre), and Fred Coleman (Philadelphia), all of The General Crushed Stone Company.

The new minimum wage of 75 cents per hour, pointed out William Hargadine Jr., U. S. Department of Labor, goes only a little way toward correcting the differential between the minimum wage and the increase in the cost of living. For those employees who are paid on a semi-monthly or monthly basis, the administrator of the Wage & Hour Law said that he will regard the payment of $130 per month for a 40-hour week or $65 semi-monthly as the equivalent of 75 cents an hour. Mr. Hargadine reminded the audience that the new minimum wage also applied to those persons engaged in work covered by a Walsh-Healey contract.

According to Mr. Hargadine, the only exceptions to the minimum wage apply where the administrator issues a special certificate. The



• Carl Beckler, H. W. Lynn, and George Weiss, all of the Bethlehem Steel Company, and Oscar Benson and C. A. Reid, both of The General Crushed Stone Company, Easton, Pa.

law specifies that these special certificates can be issued only to the extent necessary to prevent curtailment of opportunities of employment. Usually these certificates are issued for learners, apprentices, messengers, and handicapped workers.

Although the provisions of the law relating to its coverage have received wide publicity, actually the range has been narrowed very little. There has been no change in coverage of employees engaged in the production of sand, gravel, stone, or cement for use in the construction of highways; they are covered by the act. Producers of agricultural limestone which is sold to farmers within the state are not within the act.

The new provisions defining the "regular rate" are especially noteworthy, because they may be expected to do away with many problems caused by the failure of the original act to define this term. Some of these questions drew nationwide attention following the decision of the Supreme Court more than a year ago in the so-called "overtime-on-overtime" cases involving the longshore industry.

The substance of a law enacted last July to solve some of the difficulties highlighted by this decision has been incorporated into the new amendments. Briefly stated, certain types of premium payments are to be regarded as true overtime pay, which may be offset against the statutory over-time requirements, if they are at least one and one-half times the employee's straight-time rate.

Dr. George C. Smith, research economist for the U. S. Chamber of Commerce analyzed the socialistic trend in the United States. The choice between freedom and socialism is largely a matter of continuously recognizing the implications of the small steps that carry us down the back road to socialism. In many instances, a considerable measure of self denial of what seems to be the immediate self interest is necessary if we are to avoid a socialistic state. Fortunately the choice is pretty much up to the individual—a choice which is still ours to make.

Life under a free market economy is never perfect nor pleasing to all. Under this system, the consumer, rather than a central authority, ultimately governs and directs production.

According to Dr. Smith, the role of government in a free market economy is that of protecting property and enforcing contracts. In addition, government can best perform these functions: national defense, administration of justice, and a limited number of services including minting of money, etc.

According to H. H. Wagner, general manager of the Pennsylvania Stone Producers Association, the tonnage of aggregates used in Pennsylvania during 1949 was greater than for any year on record. It is estimated that nearly 6,000,000 tons of aggregates were used in the construction of new highways, plus an additional 3,000,000 tons for maintenance.

"Samuel Mitchell's" Career As Cement Carrier Described

A description of how a 56-year-old Great Lakes ship was converted into a "modern" cement carrier was presented recently by Charles A. Adams, superintendent of plants and boats for the Huron Portland Cement Company, before a Great Lakes panel of the American Merchant Marine Conference in New York City.

In describing the career of the *Samuel Mitchell*, Mr. Adams traced the craft's eventful history from 1916, when it was converted from an ore ship to a cement carrier, to the present. Today the *Mitchell*, equipped with an air-activated gravity conveyor called "Air-Slide", has had its capacity increased by 30 percent by the use of modern loading devices. Mr. Adams stated that the "Air-Slide" system could be used effectively for any dry, pulverized material, such as lime, fly ash, soda ash, etc.

The Huron Portland Cement Company ships cement by water from its plant at Alpena, Mich., to ten distributing plants located in widely separated ports on the Great Lakes.

New York Salt Mine Methods Described in New Circular

Methods and practices at the Retsof rock salt mine in Livingston County, N. Y., believed to be the largest producing salt mine in the world, are described in an information circular released recently by James Boyd, director of the U. S. Bureau of Mines. An outstanding safety record has been maintained at this mine for more than two and a half decades.

Free copies of Information Circular 7522, *Operations and Safety at the Retsof Rock Salt Mine*, by William Eathorne, Bureau mining engineer, can be obtained from the Bureau of Mines, Publications Distribution Section, 4800 Forbes Street, Pittsburgh 13, Pa.

Safety News Is Never Passe Opines "Basic Blast" Editor

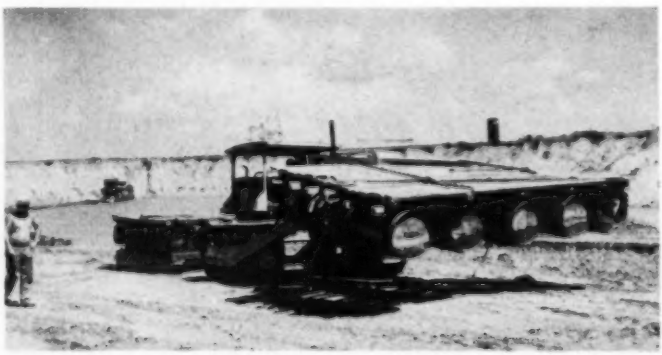
Safety-conscious nonmetallic minerals operators may take a leaf from the *Basic Blast*, company paper of Basic Refractories, Inc., which regularly publishes statistics on the firm's safety standing.

On page 1 of a recent issue appeared two items related to safety on the job. The first presented the "safety record" at the firm's Maple Grove, O., plant, broken down into departments to show their relative standings in total days without lost-time accidents up to November 5. The second proudly proclaimed that the plant had had only one lost-time accident in the current month.

Utah University Research To Aid Phosphate Industry

Studies involving a new, low-cost method for processing phosphate to enhance Idaho's competitive position as a producer of phosphate fertilizers for Western markets are occupying the earnest attention of experts at the University of Idaho at Moscow, according to President J. E. Buchanan.

Cooperating in the university's research project in phosphate utilization are its engineering, mines and agriculture schools, working under the leadership of Dr. C. O. Reiser of the chemical engineering department. The study will explore processing methods not now being utilized; it will be the 25th project in the university's special research program, authorized by the Idaho state legislature.



• McGrath Sand & Gravel Company officials recently utilized a "Caterpillar" diesel D8 tractor to power a No. 8S bulldozer for an unusual job. The "team" hauled the unwieldy barrel rafts needed for pipeline support at the firm's operation near Chillicothe, Ill.

the plant operator

by WOLF G. BAUER
Consulting Engineer

PUTTING AIR TO WORK IN THE PLANT

PART II—PNEUMATIC CONVEYING SYSTEMS

another P-Q exclusive

IN the preceding discussion, some of the basic principles and phenomena of moving solid particles with air streams were given and analyzed. At this point, the various actual arrangements and applications are illustrated and classified in a simplified manner, so that the reader may understand the distinguishing features.

It was pointed out before, that the required velocity and pressure of the air stream depended on particle size, density, and friction pressure losses in the system. The illustrated systems are classified into four groups as follows: The first two groups classify the system according to whether the material feeder lines are under negative or under positive pressure. They apply to all conveying of all sizes and types of material. The third and fourth groups are composed of systems which handle only finely divided materials in powder form, and they are classified as the high-pressure closed-channel, and the low-pressure open-channel types.

Suction Feed Systems Figure 1-A illustrates what is probably the simplest and most direct system. Here the material is fed manually or mechanically through a hopper into the air line

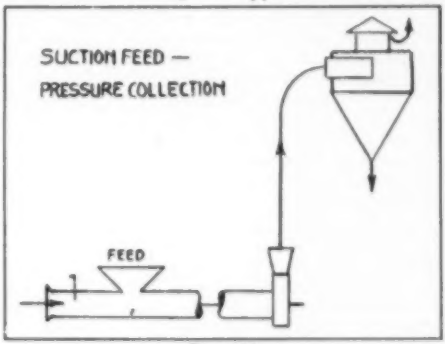


Figure 1A

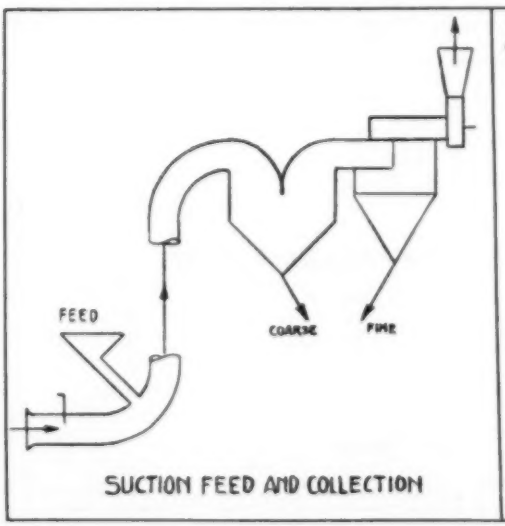


Figure 1B

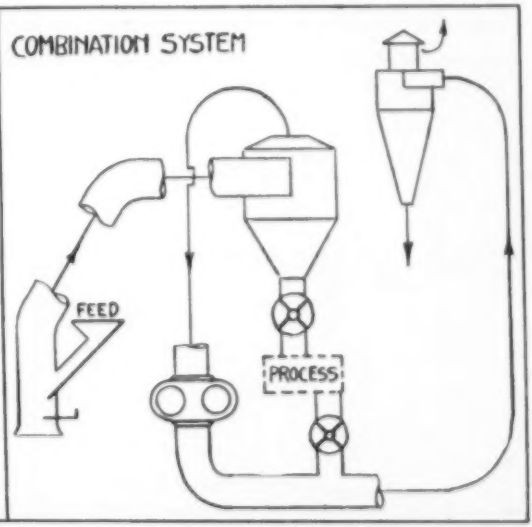


Figure 1C

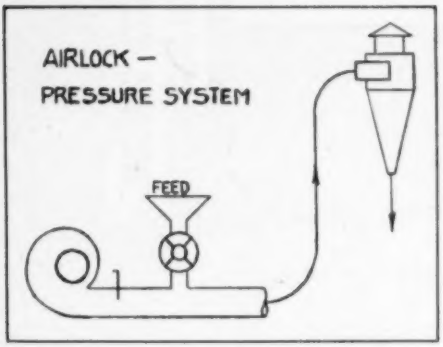


Figure 2A

which is under suction. It should be remembered that more than half of the total conveying air must be admitted at other than the solid material entry point to prevent possible blocking or choking of the line due to air stoppage. The best air proportion can be determined by trial with the gate as shown, since the amount allowed to enter with the feed depends on the nature of the material and the manner of feeding. If the material is bulky and light, such as mineral wool, for instance, the opening must be large and possibly under mechanical agitation, and more than half of the air can come in with the feed.

It can be seen from the illustration that here the material is allowed to pass directly through the fan either because the material is non-abrasive, the lift is high and collector is difficult to reach, or the material passage through the fan is part of the process by reason of its contact with the churning blades.

Figure 1-B shows the collector between the feeder and the fan as used in cases where it is either detrimental to fan or the material if such contact were allowed. The illustration shows two types of collectors in series, as in cases where the material is coarse or very abrasive. In such instances the first collector or trap removes the heavy or large particles before the more severe cyclonic action of the second collector becomes operative.

Figure 1-C is a combination arrangement such as might be used in emptying a box car of material that is processed and then transported by the same airstream and air machine to reduce dust losses, equipment costs, or further contaminations. It should be noted that positive air-lock must be provided to separate the pressure and suction side of the system.

Pressure Feed Systems Figure 2-A illustrates the manner in which material is fed into the pressure side of the system through a rotary feed valve. It is quite possible to constrict the duct opening in the air line in such a way as to reduce the static pressure at the expense of the velocity pressure to a value which will bring the feeding point to a neutral or negative pressure, thus eliminating the need for a sealed feeder. Figures 2-B and 2-C illustrate two designs, the round venturi being somewhat more efficient. The upstream and the downstream included angles of the venturi feeder should not be greater than 21 degrees and 7 degrees respectively, while the length of the venturi throat (width of feed opening) should never be more than the diameter. If the venturi is well designed, a pressure loss of not over 18 percent of the static upstream pressure can be obtained. This loss varies somewhat with the air-solids ratio, of course.

The advantages of this system reside mainly in the fact that the material to be conveyed does not pass through the fan or air pump, which can therefore be conveniently located at a low point in the system. Furthermore, the pump or blower is handling only clean and cold air, which reflects in low-cost units and higher efficiencies.

High Pressure Closed Channel The principle of aerating fine powders and moving them by high pressure air through pipes is the same in each of the illustrated types in the group. The difference rests primarily in the technique of feeding fresh material into the aerating zone. Thus in the Fuller pump (Fig. 3-A), a variable pitch screw simultaneously compresses the material as it seals the aerating chamber, while in the blow-tank system, an alternating air-lock technique effects a positive seal. Since this latter seal is positive, it is apparent that higher air pressures may be allowed. Hence the material can be conveyed a greater distance and against higher system resist-

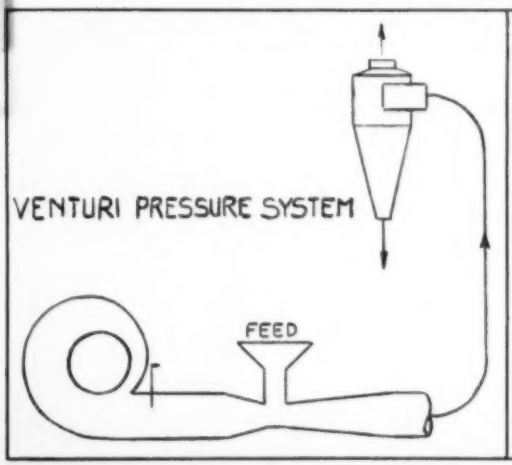


Figure 2B

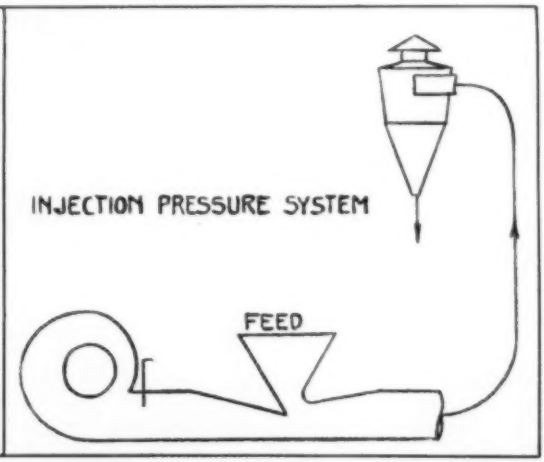


Figure 2C

ances. There are several variations of the blow-tank technique. The particular illustration (Fig. 3-B) indicates a primary multi-jet aerating arrangement followed by an injector air nozzle acting as an entraining feeder. It is apparent that one tank delivers while the other is filled.

Figure 3-C is actually quite similar in principle to the blow-tank system, except that a static head is developed in the bin or silo by virtue of aerating the bottom zone to the point where it becomes somewhat fluid, and develops a hydrostatic head through the weight of solid material in the column above it. A full or partially full silo acts as the pressure seal, which in turn dictates the amount of back pressure allowed the conveying system.

The reader may have noted the absence of cyclonic type of collectors in this system, which is possible because of the relatively low air-solids ratio used in conveying. Merely a breather stack with or without a cloth filter is generally sufficient.

Low Pressure Porous Channel System

Figure 4 shows the essential components of the original German Polysius porous channel conveyor recently making its appearance in the United States, and descriptively called "air-slide" conveyor. It should be noted that with the combination arrangement of a separate porous section under the hopper and a gate at the start of the inclined channel, positive controlled self-feeding is established.

The Polysius air-slide uses a porous plate trough. In one Italian plant, which the writer visited in 1948, these plates or tiles were made on the spot by simply tamping a mixture of graded sand and sodium silicate binder in a mold, and allowing the mixture to harden. The conveyors are set at an inclination of 2½ to 3 degrees, and are operated with air at about 20 in. W. G. static

Figure 3A

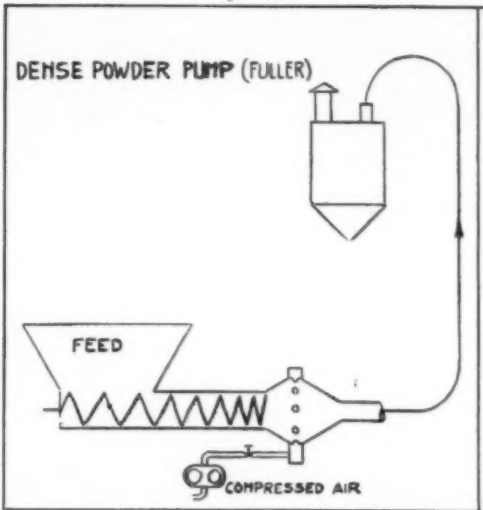
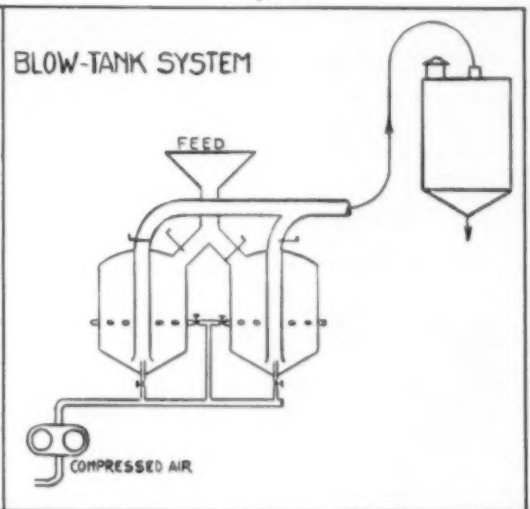


Figure 3B



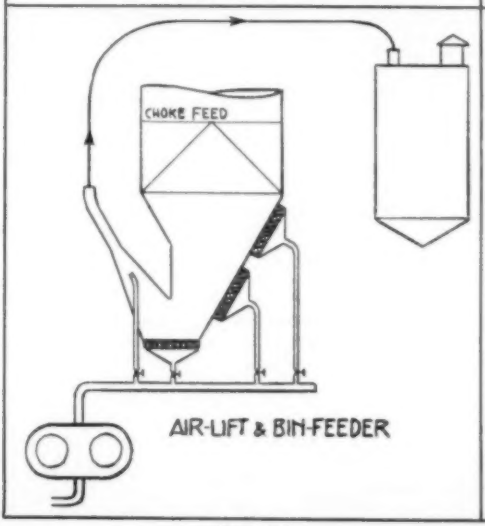


Figure 3C

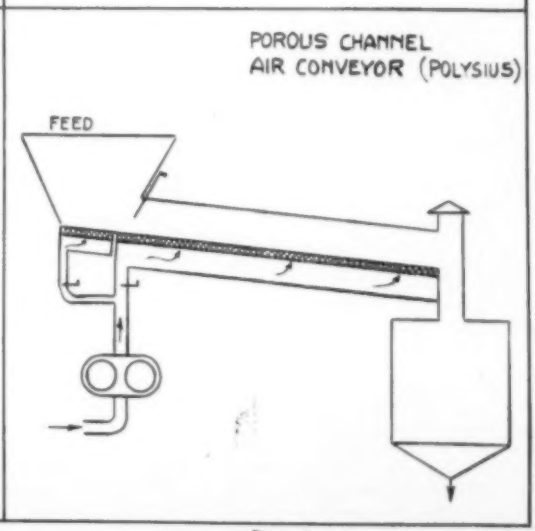


Figure 4

pressure in this particular plant. Conveyors of this kind have been in use for quite a number of years throughout European countries, and their recent introduction in the United States with the substitution of fabric for porous tile has aroused considerable interest. (Let us be fair and admit that the air-slide is not a new American contribution to the conveying art, even though some slight modifications in material of construction have been made here.)

The obvious field of this conveyor is in the transport of fine powders which are dry and which lend themselves to aeration. If the plant operator has such material to be conveyed, he can well construct such a system at relatively low cost.

In conclusion it should be pointed out that pneumatic conveying in any of its forms is well worth investigating, especially when awkward locations or lack of head room or straight-line paths make it difficult to use other means of material transport. The designer must provide, in all cases, adequate protection—hard-surface removable armor or rubber linings—against wear of the pipe or duct system at points of impact and stream-direction changes. Choice of centrifugal fans, blowers, staged turbine blowers, or the more positive air screws and cycloidal blowers and compressors rests with many operating factors, and is a field of study in itself. Suffice it to say here that pressure requirements invariably determine the type. When a choice is indicated, freedom from plugging, abrasion and cleanliness of air stream passing through the machine, efficiency, and power consumption will decide the issue.

Most Out of Lubrication

(*From page 74*)

brication responsibilities does make lubrication effective.

This man's lubrication supervision duties should be devoted to the direction of the oiler or oilers so that the right lubricant is stored and used properly, so that necessary records are kept so that preventive maintenance practices are followed, and so the working partnership with the lubrication engineer is kept alive.

An important part of lubrication supervision is to route the work of the oilers. The larger the operation, or the more scattered the equipment, the more important this becomes. To have efficient oiling practices, there should be a plan-of-work tailored to suit the lubrication needs of the individual machines. Without some kind of a timetable, the oiler can not be at all places at all times when the machine parts need lubrication.

With the experience of several operations as a guide, these are the more or less specific duties of lubrication supervision: see that the proper lubricants are use; that machine parts are lubricated at proper intervals; that the recommendation charts are used and followed; that lubricating devices are installed and kept in good working order; that lubricants are stored and handled correctly; and, that the oilers are trained to do a complete and effective job of lubrication. Help on many of these will, of course, be supplied by the oil company's lubrication engineer.

Step 4—*Measure the lubrication benefits received.* This should be done every few months by the lubrication engineer. Such work provides a running comparison with lubrication results determined by the first lubrication study. The results obtained over and above the original results will be the measure of the improvements made—proof of what organized lubrication will do for you, and performance proof that more results can be obtained from your lubrication dollar.

Operation Rugged

(*From page 77*)

the plant hopper. Power is distributed to the various equipment units through separate oil dashpot switches. General Electric controls mounted on the outside of the trailer permit stoppage at any point, except the apron feeder and picker belt. The cost of electricity for the entire plant averages about $475 monthly.

A. C. Hextell is president of the corporation. He is assisted by E. DeLong, plant superintendent. Ten men carry out the individual operations—two on the shovel; one each on the high lift, grizzly and picker belt; four truck drivers; and one maintenance man.

The Lockport plant is the first slag venture of Mr. Hextell, who has been a sand and gravel operator for the last 15 years. He is at present operating two sand and gravel plants, one 50 miles northwest of Chicago on U.S. highway 12 and the other at Atkinson, Ill.

Labor Developments

(*From page 78*)

nesses and the production of any evidence. Refusal to meet the demands of the commission for evidence is punishable by fines.

What this really boils down to is that the commission has very broad investigatory powers and also has very broad powers to publicize any situations which it regards as evidencing discrimination. There is nothing in the law that prevents it from including in its reports the names of employers it believes to be guilty of discrimination. Many employers are specifically concerned about their public relations and frequently spend significant amounts of money on developing them. Much of these carefully nurtured public relations could be quickly destroyed by a charge of discrimination made by this commission. In New York State, for example, where a similar Fair Employment Practice Act has been in operation for some years, the board which administers that law has regularly reported that it has practically never had to resort to any compulsion on employers to accomplish the results it desires. Practically all it has ever done is to threaten employers with the possibility that it will make public its charges against them, and the employers have generally conformed with the requirements of the commission. No doubt, a similar approach will be taken on a national scale. Thus the teeth of this law are not to be found in the penalties, for there are none. The enforcement power under this law does not rest with the commission, but rather with the public; and in our democratic system that is likely to be the best way to get real enforcement.

Norwegian Phosphate Works To Reduce Foreign Imports

At Odda, Norway, the Norwegian Zinc Company's new plant has been completed, and production of superphosphates was scheduled to begin at once.

Production capacity was set at about 40,000 tons during the first development period. Ultimately it is expected to reach 80,000 tons per year. The new source of supply is expected to halt phosphate imports temporarily, although the demand will probably continue to rise steadily. To the present time Norway has had to import as much as 80,000 tons of super-phosphates annually.

Allis-Chalmers Mfg. Company Offers College Scholarships

A program providing up to 20 annual college scholarships of $500 each for children of Allis-Chalmers Manufacturing Company employees has been announced by Walter Geist, company president.

A minimum of five scholarships will be awarded to applicants desiring to enter school between June 1, 1950, and May 31, 1951.

Du Pont Quarry Blasting Plan Gives Better Fragmentation

This recent shot in a Georgia granite quarry shows the fine results you can get with the Du Pont Quarry Blasting Plan. This plan promotes safety by using the safest blasting agents available . . . Du Pont "Nitramon" and "Nitramex," and by keeping caps off the job until all holes have been loaded and stemmed. Firing with the Du Pont Blasting Timer improves fragmentation, thus increasing shovel efficiency. Vibration is cut down greatly, with the holes going off in split-second rotation, and back break is generally reduced.

Bottom load of Du Pont "Nitramex" provides extra energy for hard rock. "Nitramon" Primer, with Primacord attached, is loaded near the bottom and Primacord run to the top. "Nitramon" and additional Primers, as required, complete the charge.

After all holes are stemmed, the Du Pont Blasting Timer is connected to the individual circuits. Each one can be tested, and all are automatically shorted for safety. At the last moment, each hole is tied in and the blast is then fired.

Ask the Du Pont Explosives representative in your area for complete information about this safer, more efficient and economical plan for quarry blasting. E. I. du Pont de Nemours & Co. (Inc.), Explosives Department, Wilmington 98, Delaware.

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BLASTING SUPPLIES AND ACCESSORIES

For safer more efficient economical quarry blasting

"NITRAMON"*

Wins approval because of its safety. Cannot be detonated by commercial blasting caps, by fire, friction, falling objects or even the impact of ball ammunition. Yet a "Nitramon" Primer—itself relatively insensitive—dependably fires charges under all conditions.

"NITRAMEX"**

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Ruggedly constructed, it offers a selection of 15 circuits with delay intervals from 0.010 to 0.025 seconds in increments of 0.005 seconds. This range of delay intervals peels the rock from the quarry face . . . gives better fragmentation, reduces back break and creates less vibration. Either 110, 220, 440 or 550 volt circuits may be used.

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**Trade-mark for Du Pont ammonium nitrate blasting agent.

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DU PONT

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personal mention

E. A. Weymouth

Appointment of EDWARD A. WEYMOUTH as manager of sales and ARTHUR H. PADEN as assistant manager of sales of the Pittsburgh Limestone Corporation were announced recently by A. W. Worthington, president of this U. S. Steel subsidiary.

Mr. Weymouth, who was graduated from Pennsylvania State College in 1930, was employed for the following nine years as junior civil engineer with the United States Forest Service and as engineer with the Pennsylvania Department of Highways. He has been associated with Pittsburgh Limestone since 1939 in sales engineering and since 1944 has been engineer of sales for the company. He is a member of American Concrete Institute, Engineers Society of Western Pennsylvania, and Pennsylvania Crushed Stone Association.

Mr. Paden was engaged for a period of six years in clerical work with the Pennsylvania Railroad and Pittsburgh and Lake Erie Railroad before joining Pittsburgh Limestone in 1921. Serving originally in a clerical capacity, he was made office manager of the sales department in 1944, the position he held at the time of his present appointment.

JOHN W. HALL has been named northern regional sales manager of the Potash Company of America, whose headquarters are at 50 Broadway, New York City.

G. G. TOMLINSON, a member of the Lone Star Cement Company's staff at Dallas, Tex., has been installed as this year's president of the Dallas Traffic Club.

GAIL HAMILTON was appointed assistant sales manager for the Ash Grove Lime & Portland Cement Company of Kansas City, Mo., according to an announcement issued by A. B. Sunderland, president, and Purd B. Wright, sales manager.

J. B. YAGER, long associated with the Los Angeles district offices of the Portland Cement Assn., has severed this association and connection to engage in real-estate promotion and building in the Santa Barbara area.

Three recent appointments have been announced by officials of the International Minerals & Chemical Corporation:

SINCLAIR B. MCCOY has been appointed assistant to the vice-president in charge of the Potash Division.

EUGENE J. LANDIS was named general traffic manager, and RONALD A. ELLWING is assistant general traffic manager.

WALTER HULL ALDRIDGE, president of the Texas Gulf Sulphur Company, has been awarded the 1950 John Fritz medal, a joint award of the A.I.M.E., the A.S.C.E., the A.S.M.E. and the A.I.E.E.

In winning this honor, Mr. Aldridge was described as an "engineer of mines and statesman of industry who by his rare technical and administrative skills has importantly augmented the mineral production of our country . . ."

The Pennsylvania-Dixie Cement Corporation has announced the following appointments: FRED L. DOOLITTLE, vice-president and general sales manager; E. P. NEWHARD, vice-president and operating manager; JOHAN NORVIG, director of engineering; and STEWART H. DEWSON, chief engineer.

Mr. Doolittle started in the Boston sales office in 1929; he later spent five years in the field, and since 1941 has been attached to the general sales office in New York. He has been general sales manager since February, 1945.

Mr. Newhard received specialized training at Muhlenberg College. His early experience includes employment with the U. S. Geological Survey and

E. P. Newhard

F. L. Doolittle

the Atlas Portland Cement Company at Northampton, Pa., and Hudson, N. Y. He was an assistant and later chief chemist for the Giant Portland Cement Company at Egypt, Pa., and Norfolk, Va., from 1910 to 1918. From 1918 to 1926 he was chief chemist of the Clinchfield Portland Cement Company at Kingsport, Tenn., and from 1926 to 1932 chief chemist of the Southern Division of the Pennsylvania-Dixie Cement Corporation, with headquarters at Chattanooga, Tenn. From 1932 to 1944 he was superintendent of the Clinchfield, Ga., Penn-Dixie plant, and from 1944 to 1948 he was general chemist in charge of chemical control and research with headquarters at Nazareth, Pa. On September 1, 1948, he was appointed operating manager in complete charge of the operating and engineering departments at all plants.

Johan Norvig

S. H. Dewson

Mr. Norvig is a graduate mechanical engineer of Copenhagen Technical Institute, Denmark. He came to the United States in 1906 and started his career with F. L. Smidth & Company. His duties there included such assignments as the reconstruction of the cement plant at Alsen, N. Y., and building the Three Forks plant at Trident, Mont. Operating experience followed with the St. Louis Portland Cement Company and later with the Texas Portland Cement Company. From 1917 to 1924 he was chief engineer in charge of design and construction for the New Jersey Zinc Company. He held a similar position with Lone Star Cement Company from 1924 to 1932. Subsequently he served in the Lone Star operating department as general superintendent of plants at Greencastle, Ind., and Hudson, N. Y. Mr. Norvig joined Penn-Dixie in 1938 as general superintendent and in 1946 was appointed chief engineer, a position he held until his present promotion.

Mr. Dewson has had an uninterrupted career in the engineering field, serving as ship draftsman in the Hull Division, U. S. Navy, and for a short period as draftsman for the Fuller Engineering Company. After serving as plant engineer for the Whitehall Cement Company he was appointed assistant conservation engineer for the Portland Cement Association. Following this assignment, he became associated with the Pennsylvania Cement Company as chief engineer. He held this position until the merger resulting in the Pennsylvania-Dixie Cement Corporation, at which time he was named chief engineer of the Northern Division, and later as assistant to the chief engineer for all plants. Mr. Dewson attended Lafayette College and is a registered professional engineer.

Mr. Newhard, Mr. Norvig, and Mr. Dewson will continue to make their headquarters at Nazareth, Pa., and Mr. Doolittle will remain at 60 East 42nd St., New York City.

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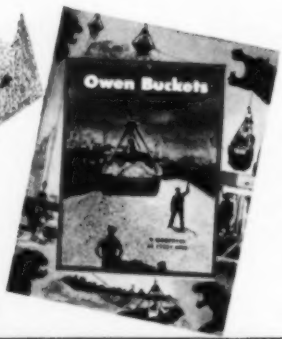

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Mexican Concern Exploring Extensive Sulphur Deposits

Under the terms of a contract made with the Mexican National Commissioner for Stimulation of the Mining Industry (a department of the Ministry of National Economy), experimental exploitation of great sulphur deposits on the Isthmus of Tehuantepec will be undertaken by Cia. Exploradora del Istmo, S.A. This Mexican company has headquarters in Mexico City and is backed by American interests. The deposits, reportedly extensive and rich, were discovered during oil well drilling operations.

Exploitation will be carried on under the following terms: the company may work in a large zone of the isthmus during the first five and one-half years of the concession, after which its scope will be limited to 6,000 hectares (13,500 acres). Cia. Exploradora must give the commission a royalty on the sulphur it obtains. If the results are successful, the firm must first serve Mexican consumers before exporting surpluses. Mexico now imports about 3,000 tons of sulphur annually.

Bureau of Labor Standards Issues Booklet on Safe Lifting

Lifting know-how does *not* come naturally. Thousands of workers every year suffer strains or hernias from the simple process of picking up and putting down, according to the Bureau of Labor Standards in its new booklet, *Teach Them to Lift*.

Workers must be trained in safe lifting, and many tricks of the trade are told in this publication. Popular in style and amusingly illustrated, it is the second in a new series of safety pamphlets designed for the industrial foreman or supervisor.

A limited supply of free copies is available from the Bureau of Labor Standards, U. S. Department of Labor, Washington 25, D. C. Quantities may be purchased at 10 cents each from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. A 25 percent discount is allowed on orders of 100 or more.

Limestone Deposits in India Called Inexhaustible by Survey

Large deposits of limestone, useful for cement manufacture, have been located in Madras province by the Geological Survey of India. The reserves described by experts as "inexhaustible" are near Kurnool. On chemical analysis, the samples show a high percentage of silica and low magnesia content. Mixed with higher-grade limestone, which is also available in this area, the new deposits will be suitable for the manufacture of portland cement.

Recently the Geological Survey located large deposits of high-grade limestone in the Mikir hills in Assam which can be used without the addition of bauxite. The deposits are estimated to contain about 85,000,000 tons.

PROFITS SOAR

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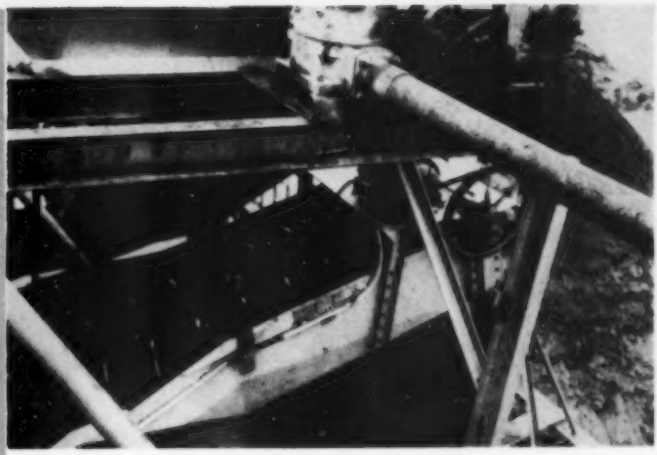

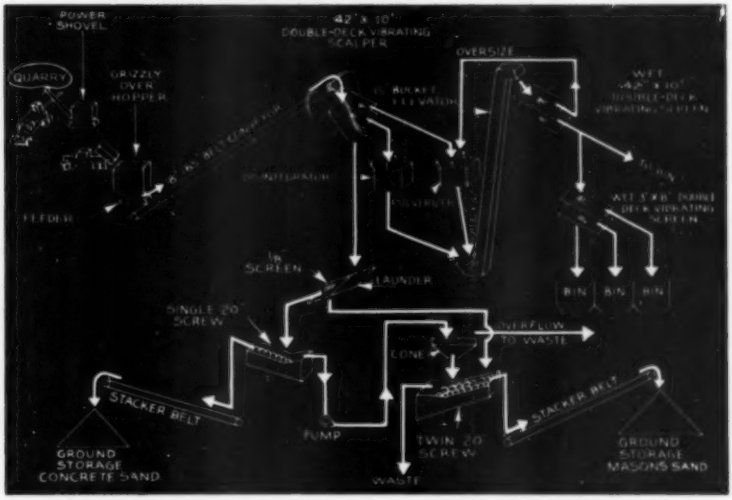

THE flow sheet below shows the plant layout of the Airport Sand & Gravel Co. Deposit averages 35 ft. in depth. Output is 100-tons per hour of concrete sand, mason sand and washed gravel, graded to 2½", 1¼" and ¼". Gravel is screened out and all sand is chuted to ⅛" wet screen. Material retained by screen flows to an Eagle 22' x 20" Single Screw Washer - Classifier - Dehydrator. Here clean, concrete sand is produced. Material flowing over the long weir is pumped to an Eagle 22' x 20" Double Screw Unit, shown above. Here mason sand is washed, classified, dehydrated and conveyed to stockpile. Material discharged over long weir end of tub — practically clear water — flows to waste.

Wherever materials are being produced for concrete highways and building purposes you'll find Eagles on the job, delivering materials to specifications and recovering marketable fines that are normally wasted. Eagle Fine Material Washers quickly return their cost. Ask for Catalog 47.

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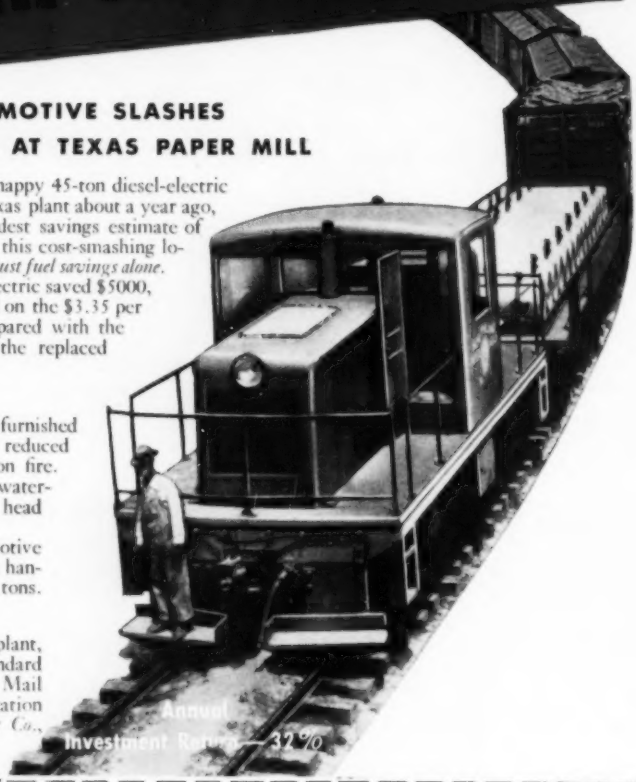
G-E DIESEL-ELECTRIC LOCOMOTIVE SLASHES FUEL COSTS BY 89% AT TEXAS PAPER MILL

When the Southland Paper Mills put this snappy 45-ton diesel-electric locomotive into operation at the Lufkin, Texas plant about a year ago, the company did so on the strength of a modest savings estimate of $15 a day made by G-E engineers. Since then this cost-smashing locomotive has almost doubled this estimate *in just fuel savings alone.*

During six months' operation the diesel-electric saved $5000, at the rate of $27.65 per day. This is based on the $3.35 per day fuel cost for the G-E 45-tonner, compared with the daily $31.00 cost of bunker fuel oil for the replaced steam locomotive.



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In addition to savings, the G-E switcher furnished these other benefits. The absence of sparks reduced the danger of setting paper and pulp wood on fire. There's no longer any need to take time for watering. No watchman is required to maintain a head of steam.

Seven days a week, this peppy locomotive switches cars at the push of a button, often handling 15-car strings weighing over 1200 tons.

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More Information, Please

CHECK AND MAIL THE CARD BELOW FOR ADDITIONAL INFORMATION ON NEW MACHINERY AND SUPPLIES

1. **Johnston Processing Plants for Perlite.** Flier featuring the 1200-lb. perlite processing plant offered by this firm. Describes fundamental parts of the plant—feeder, elevator, furnace, hopper, cyclone-bagger, exhaust fan, supporting frame, control panel, and building. Johnston Mfg. Co.

2. **Installation, Care and Maintenance of Rubber Conveyor Belting.** Vest-pocket booklet containing helpful information on such problems as receiving, storage, splicing, training, repairs, etc. Carlyle Rubber Co., Inc.

3. **1950 Truck and Trailer Size and Weight Restrictions.** 52 pages. A pocket-size manual containing regulations for every state in the Union. Issued by the Four Wheel Drive Auto Co.

4. **Beaumont Bevcalloy Chains, True-Pull Wheels, Dove-Tail Lock Buckets.** Catalog No. 10-B. Sketches and specifications of these items, together with descriptions. Beaumont Birch Co.

5. **The Role of Flow Rate Measurement in Mineral Separation—Particularly the Flotation Process.** Bulletin A-26A-1. (Illustrated). A presentation of the "Flowrater", a variable-area type flow rate meter. Fischer & Porter Co.

6. **For Controlling Water Seepage and Dampness—Prufrite.** 4-page bulletin describing a formulation (3 types available) for treating brick, concrete, cement plaster, stucco, and concrete masonry units. Contains typical questions and answers relating to the product. Prufcoat Laboratories, Inc.

7. **Titekote Water Resistant Coating for Masonry Structures.** Folder describing the uses, composition, and advantages of Titekote No. 1 (base coat) and Titekote No. 2 (finish coat), protective coatings designed to furnish weatherproofing. Cook & Nichol, Inc.

8. **Liftall Hydraulic Gripping Forks for Clark Fork Trucks.** Attractively illustrated folder showing the many uses of these forks, which handle products without skids or pallets. Liftall Corporation.

9. **Hydroscale Weighs Loads as You Lift Them—Weighs Them on the Spot.** Four-page illustrated bulletin explaining the functions of this device in tasting, shipping, inspection, warehouse weighing, etc. Cites important advantages. Hydroway Scales, Inc.

10. **Automotive Industrial Marine Cummins Diesels.** 35-page, three-color bulletin describing 71 models of Cummins diesel engines. Contains the following: specifications, full descriptions (illustrated), mechanical features, table of dimensions, fuel system, etc. Cummins Engine Co., Inc.

11. **Link-Belt Ball and Roller Bearings.** Catalog 2550. Complete catalog containing engineering data and illustrations of typical applications. 112 pages. Link-Belt Co.

12. **Unitair Compressor Catalog.** 16 pages. Illustrated with views of all sizes of Joy WL-80 compressors and sectionalized drawings. Included is a selector chart Joy Mfg. Co.

13. **Electronic Speed Variator.** 8-page bulletin fully describing this device "for higher horsepower applications where it affords wide speed ranges, excellent speed regulation and extraordinary adaptability, at moderate cost". Standard, optional and construction features are given. Fully illustrated. General Electric Co.

14. **Contractors' Special Road Material Scale and Winslow Type S.** Two bulletins, the first describing a portable truck scale for 15-, 18-, 20-, and 30-ton capacity, the second featuring a scale for installation in building or office, with platform lengths to 60 ft. Winslow Government Standard Scale Works.

15. **Bulletin on Edmont Gloves.** An illustrated article (reprinted from a periodical) which presents accounts of actual cases in which the gloves were used to promote safety in industrial shops, such as concrete block plants, etc. Edmont Mfg. Co.

16. **Bucket Elevators. Bulletin 674.** Illustrated bulletin on centrifugal elevators, (enclosed), continuous steel elevator buckets, elevator boots and buckets, continuous bucket elevators (open), and V bucket elevator-conveyors. Tables of dimensions included. General Conveyor and Mfg. Co.

17. **The Yale Pak-Loader Fork System of Material Handling.** Copiously illustrated folder featuring a fork truck system consisting of a fork truck equipped with a pusher device and steel pallet plates. The Yale & Towne Mfg. Co.

18. **Bulletin No. 147.** 8-page bulletin illustrating and describing the operation of the ACS 30 Series and 24 Series crushers of American Pulverizer Co. Includes specific construction features, diagrams, capacities and ratings, dimensional data, and typical installations.

19. **H-D Tractor Service Manual.** 220-page manual, divided into 23 sections, comprising a complete guide on proper operation, maintenance, and repair of this tractor. Price, $3 per copy. Allis-Chalmers Mfg. Co.

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April, 1950

PIT AND QUARRY:

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More Information, Please

20. Chemistry of Cyanidation. 40-page bulletin (17th publication in Mineral Dressing Notes) organized in four sections—Fundamentals of Cyanidation, Zinc in Cyanidation, Copper in Cyanidation, and Iron in Cyanidation. American Cyanamid Co.

21. Champion Model R Multiple Duty Masonry Saw, Champion Model RK Masonry Saw, Champion Ruby Blade, and Champion Jade Blade. Four fliers describing masonry cutting equipment. Champion Mfg. Co.

23. Cast Iron Pulleys for Industry (Bulletin 35) and Save Rubber Costs (Bulletin 35). The first describes the complete line of Sprout-Waldron "Blue-Face" pulleys. Bulletin 35 carries actual user testimonials of the "Belt Saver" tail pulley on bucket elevators and belt conveyors. Specifications listed. Sprout, Waldron & Co., Inc.

25. B. F. Goodrich Transmission Belting. 4-page catalog section on various types of belting, with descriptions, recommended uses, and specifications. Also outlines method of making endless belts with Flylock belt joints. B. F. Goodrich Co.

24. Clark Catalog on Fork Trucks and Tractors. Pertinent facts on these materials-handling machines arranged for easy comparisons. Specifications included. Clark Equipment Co.

25. Mineral Recovery Equipment. Bulletin No. G4911-N. Contains full details on the Denver Sub-A flotation machine, Denver-Dillon vibrating screens, Denver pumps, jaw crushers, and selective mineral jigs. Denver Equipment Co.

26. Athey Mobiloader Straight-Line Loading and Saving in Loading with Athey Mobiloaders and Force-Feed Loaders (with specification list). These bulletins contain on-the-job views of Athey equipment, as well as closeups. Athey Products Corp.

27. Williams Fine Grinding and Air Separating Equipment. Bulletin No. 660. Features Williams roller mills, "Spinner" air separator, impact mill with air separator, adjustable vane separator, R. C. type mechanical air separator, and Helix-Seal mill. Outstanding features, applications, performance data, specifications, etc. included. Williams Patent Crusher & Pulverizer Co.

28. Marco Pulleys and Move More for Less with Marco Conveyors. Two fliers, the first containing pulley and gate prices, the second information on Marco tubular frame construction for conveyors. E. F. Marsh Engineering Co.

29. Raymond Super Roller Mills. Bulletin 64. Pictures and describes a mill with flash drying system, high-side roller mill, low-side roller mill, and low-side type of super roller mill. Combustion Engineering-Superheater, Inc.

30. It's an Adjustable Discharge Mixer! (Bulletin 49-13), with insert on adjustable discharge Moto-Mixer. Shows and describes construction features and explains operation of this piece of equipment. Includes a table of specifications. Chain Belt Co. of Milwaukee.

31. American General Purpose Hoists. (5,500 to 10,000 lbs. single line pull) and **American General Purpose Hoists** (capacities from 2500 lbs. to 4111 lbs. single line pull). Two catalogs, 100H-55 and 100-H-40, respectively, on these hoists. Closeups show important details of construction. Specifications included. American Hoist and Derrick Co.

32. Progress in the Handling of Air. Vol. 5. Bulletin No. 4224. Copiously illustrated spiral-bound bulletin featuring installations of air-handling equipment in industry. American Blower Corp.

33. Roebling Aggregate Wire Screens. (Catalog W-905) 11-page bulletin on Roeflat, Roeslot, Roeton, and Double Crimp screens. Contains specifications and illustrations showing types of screen and wire sizes. Woven Wire Fabrics Division, John A. Roebling's Sons Co.

34. Here's Power for Peak Production in Pit or Quarry. 8-page bulletin, attractively illustrated, presenting International diesel or carbureted units powering crushers, conveyors, shakers, generators, and compressors. Includes a table of work capacity of International power units. International Harvester Co.

35. Generate Your Own Electricity. Folder featuring Murphy diesel-electric power for plant equipment. In addition to full descriptive material, this bulletin contains mechanical data, fuel consumption tables, and dimensions. Murphy Diesel Co.

36. Attachments, Tools & Accessories for Hyster Lift Trucks, Hyster Karry Kranes, and Hyster Straddle Trucks. Pictures and describes attachments such as the Load Grab, revolving apron, booms, fork extension, multiple fork, overhead guard, load guard, rams, scoops, handling arms, etc. Hyster Co.

37. Heil Hi-Angle Hoists. Bulletin BH49144. Presents the important features of this double-acting 70-degree high-dumping unit. Includes specifications and illustrations. The Heil Co.

38. Cedarapids Rock-It. Describes the dual-purpose crushing and screening plant for producing agstone, road rock or both in a single operation. Illustrated with a diagrammatic flow sheet. Dimensions, specifications, and complete descriptions are included. Iowa Mfg. Co.

39. Bulletin No. 2849. Describes the Conveyometer, a self-testing machine for feeding and proportioning lighter streams of low tonnage. **Bulletin 7144.** Presents the Continuweigh, for larger tonnages of material. Richardson Scale Co.

40. Whiting Hydro-Clone Horizontal Dust Suppressors (Bulletin FY-165) and **Whiting Hydro-Clone Vertical Dust Suppressors** (Bulletin F-162). Advantages, applications, construction and operation data, and tables of dimensions are given in these illustrated folders. Whiting Corp.

41. The National Car Shaker. 4-page folder containing illustrations which show six of the many ways in which this shaker can be used. Method of handling is given, and typical applications are listed. National Conveyor & Supply Co.

Pit and Quarry

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Hundred degree temperatures and plenty of twisting, crushing and abrasion were killers to air hose in a Texas installation. The usual air hose lasted only two or three weeks.

Then QUAKER Blue Devil Air Hose was connected to the compressors. The result! Seventeen weeks of continuous, rugged service and QUAKER was still on the job. Life expectancy of this hose . . . at least 25 weeks!

Performance like this is typical of QUAKER Hose throughout industry—and that's why QUAKER Hose is standard equipment in leading plants throughout the country.

QUAKER'S full line of pre-tested hose meets every need of the Rock Products Industry.

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Regardless if you are moving bulk materials or package goods, there is a QUAKER Conveyor Belt to do the job.

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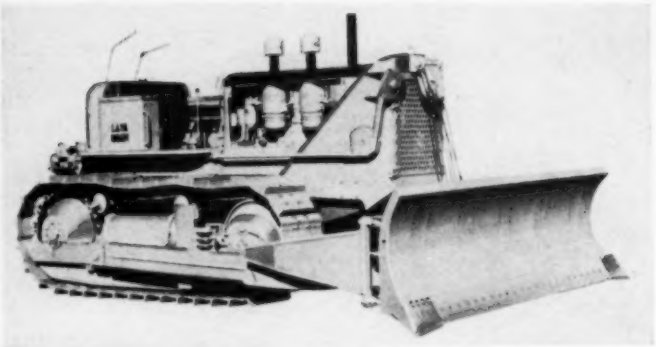


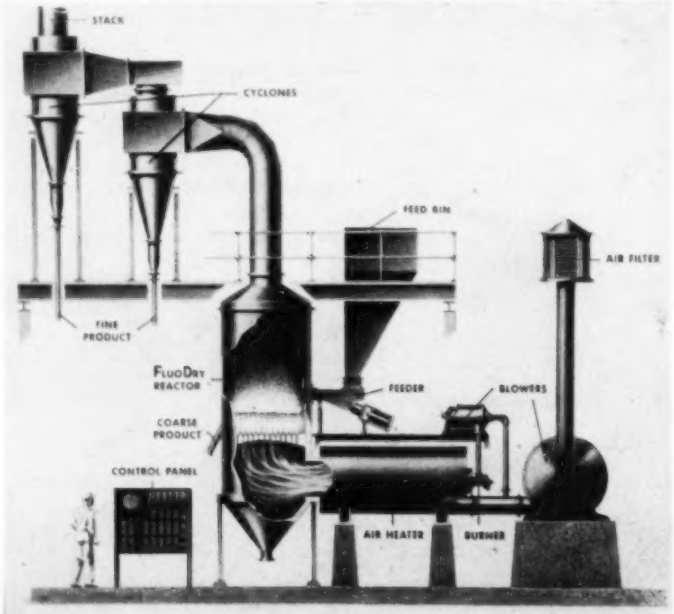
The new bulldozer and trailbuilder equipment developed by Southwest for use on current model Allis-Chalmers and Caterpillar tractors has reportedly proved exceptionally efficient and reliable in all types of operation. The units are rugged and dependable, providing outstanding economy and long service life. The overhead "A" frame structures have been entirely eliminated, to secure proper balance the full length of the track drive and better visibility for the operator. The new radiator-guard type mounting is strong and durable. This equipment can be furnished for either rear- or front-mounted control units. Bulldozers are available in either the rigid bowl or tilting bowl types. The Southwest Welding and Mfg. Co., 1906 W. Sixth St., Los Angeles, Calif.

● Drying-Sizing System

The operation of the "Dorrco FluoSolids System" (calcination in a fluidized bed) at New England Lime Company, Adams, Mass., indicated that the fuel consumption would be improved if the fine fractions were stripped from the stone before feeding the stone into the "FluoSolid Reactor." As a result, an entirely new unit, the "Dorrco FluoDry System," was developed by the Dorr Co., Inc., for drying and sizing the limestone. This unit consists essentially of three major parts: first, a vertical cylindrical sizing compartment, divided into two parts by a horizontal, perforated constriction plate; second, a dust separation system of one or more cyclones, connecting with the top of the sizing compartment; and third, an air preheater attached to the wind-box of the sizing compartment.

In operation the preheated air, passing upwards through the bed of coarse and fine limestone, provides the heat necessary to evaporate the moisture in the feed, and the vertically upward displacement of gases carries off the fine limestone particles whose settling rate in the gaseous medium is lower than the upward space velocity of the gases. Drying is a function of heat supplied at the preheater, while the point of size separation in the 28- to 100-mesh range is a function of the space velocity of the gases.

Dorrco FluoDry is expected to have general application in the continuous sizing and drying of granular or crystalline materials; and it is believed probable that in many cases it will be used for sizing and drying simultaneously. At the present time it has been fully demonstrated on limestone and is believed to be equally applicable to dolomite, sands, iron ores, coal and similar materials. It may be used alone or in combination with a Dorrco FluoSolids System. The Dorr Company, Inc., 570 Lexington Avenue, New York, N. Y.



Where "on the rocks" means a success story!

HAULING jobs carried out over the rocky terrain of quarries and open pit mines are *tough on tires*. But the tougher the operation, the higher the praise for B. F. Goodrich tires such as the big *Universals* shown above. For example: 40% of the tires removed on one open pit mining job were BFG tires; 68% of these were repairable or recappable. Of the balance, representing 3 other major brands, only 20% were found to be of value; the remainder had to be scrapped!

B. F. Goodrich tires chalk up such records because they have special construction features. The special, cut-resisting tread gives maximum protection against sharp, jagged rocks. And those wedge-shaped cleats protect the under tread, give equal traction in both directions and help prevent sideslipping.

For body protection, *double nylon shock shields* are used in all BFG Universal, Super Traction and Rock Service tires, sizes 11.00 and larger. The double nylon shock shield consists of 4 layers of nylon cords between the tread rubber and rayon cord body. These layers are in pairs; each pair is laid at scientifically determined angles with the other to give maximum strength . . . *double bruise protection.*

Under impact, the two nylon layers in each pair stretch *together;* return to their original position. Due to this action, impact is *distributed.* The tire absorbs it . . . the rayon cord body is shielded from tire-killing shocks.

Only BFG gives you the added protection of nylon shock shields . . . and the added savings which come from (1) longer tire life (2) increased number of recappable tires (3) increased bruise protection (4) less danger of tread separation. See your B. F. Goodrich Dealer or write to us direct. *The B. F. Goodrich Company, Akron, Ohio.*

Truck Tires BY

B. F. Goodrich

● Transit Crane

To meet the needs of contractors requiring a heavy-duty crane-excavator mounted on rubber, Bucyrus-Erie Company, South Milwaukee, Wis., announces production of the new 22-B transit crane. From boom point to tail light, the new wheel-mounted excavator has been engineered to deliver the outstanding performance familiar to the thousands who own its counterpart, the crawler-mounted 22-B.

High speed job-to-job mobility and a sturdy working base are assured in the newly designed transit crane wheel mounting. The 142-hp. Bucyrus-Erie mounting is built by Sterling for exclusive use with the 22-B transit crane. The wheelbase of the new mounting is 181 in., while the overall width of 8 ft. gives ample side clearance on normal roads. The durable frame is of alloy welded steel construction with bumper and outrigger brackets welded integrally. Two double box outriggers provide additional support on the job. A full-vision truck cab, air brakes, Timken-Detroit axles, optional hydraulic booster steering, and 12-speed transmission are other features of the wheel mounting.

A new crane-type boom for lifting crane, clamshell and dragline operation, has been specially designed to combine strength and length. Removable inserts may be used to increase the standard 30-ft. boom to 80 ft. in lifting crane service. For traveling, long booms are quickly folded with special equipment. Both hoist line and boom lowering are power-controlled to insure safe crane operation. Boom stops prevent raising the boom beyond safe limits.

A full range of front end equipment is available for the new 22-B transit crane. It may be converted in the field for shovel, dragline, dragshovel, clamshell or crane operation. In excavator service, the buckets and dippers are ¾-cu. yd. capacity.

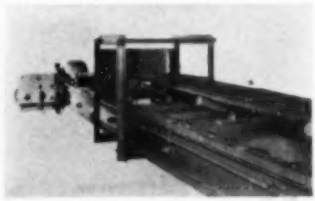
● Shuttle Conveyor

Lower cost, flexibility of operation, maximum and uniform loading of storage space, less maintenance and greater capacity are said to be obtained by the Trowbridge Conveyor Company with its newest design—a trough belt shuttle conveyor with a traveling plow.

This machine was designed for filling a series of long narrow bins where there is very little headroom. The unit shown in the photograph has an 18-in. by 29-ft. belt troughed by Trowbridge special two-pulley, dust-sealed ball bearing troughing rollers.

Automatic lifting of the plow when it reaches the head end of the conveyor allows the feed to pass over the head pulley. The plow can be pushed or moved by a hand crank all the way to the hopper, giving a discharge at any point from one end of the bin to the other. The belt is flattened at the plow for complete discharge.

A unique feature is the raising of the plow above the feed at any position by moving a hand lever. The whole conveyor is easily removed from the I-beam tracks by an overhead crane when work is to be done on the covers of the bins. The channel frame construction uses a minimum of headroom, 33½ in., allowing the Trowbridge conveyor to operate between the covers of the bins and the gantry crane. Trowbridge Conveyor Co., Clifton, N. J.



INDUSTRIAL WHEELERS
MODERN MACHINERY
COULD YOU DUPLICATE THIS FEAT?
Enterprising American engineers took over a beat-up mine that previously was notable for its unprofitable production. Their engineering know-how and ingenuity, coupled with more modern methods and modern machinery, enabled them to recover the purchase price of the mine by reworking the dump pile alone. Applying the same techniques and utilizing the money-saving advantages offered by modern machinery, the mine rapidly developed into a highly profitable operation.
MM OWNERS CAN!
MM Industrial Tractors are the modern machines that are pushing loss figures into the profit column. As an example of savings you can effect, an MM Industrial Wheeler equipped with front-end loader will lift up to 6000 lbs. (recommended working capacity) in 11 seconds and are available with extra high-lift loaders. Six forward or reverse speeds, simple shuttle-gear shifting, "roller-spin" steering, easy adaptability for all front-end and drawbar attachments . . . these are but a few of the features it will pay you to investigate with your friendly MM dealer. When you get all the facts, you'll get an MM Industrial Wheeler for *more profitable* material handling!
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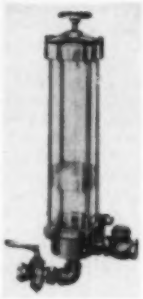
Quality Control in MM Factories Assures Dependable Performance on the Job

● Blender



An automatic, self-draining "Hydro-blender" for the introduction of chemicals that will "wet" water at the point of use, has just been announced by Miner W. Allen, president of the Aquadyne Corporation, 220 East 42nd Street, New York 17, N. Y.

The Hydroblender, made of brass castings and fittings and a tube of lucite, weighs approximately 35 lbs. It can be mounted on a wall, a machine or a column by four lag bolts or screws.

The chemicals are placed in the lucite tube in the form of water-soluble capsules. There they dissolve in proper proportion to the water passing through a built-in venturi nozzle. When used with the Aquadyne capsule, which weighs 3 lbs., the resulting solution has a surface tension of 30 dynes. Each Aquadyne capsule makes a minimum of 1,000 gallons of "wet water" (reduces surface tension from 72 to 30 dynes). The Hydroblender holds two capsules.

Principal applications of the Hydroblender are in industrial dust control and product wetting, blending, mixing and washing. It provides, as needed, the "wet water" required for these purposes without requiring special tanks and piping for its preparation and storage.

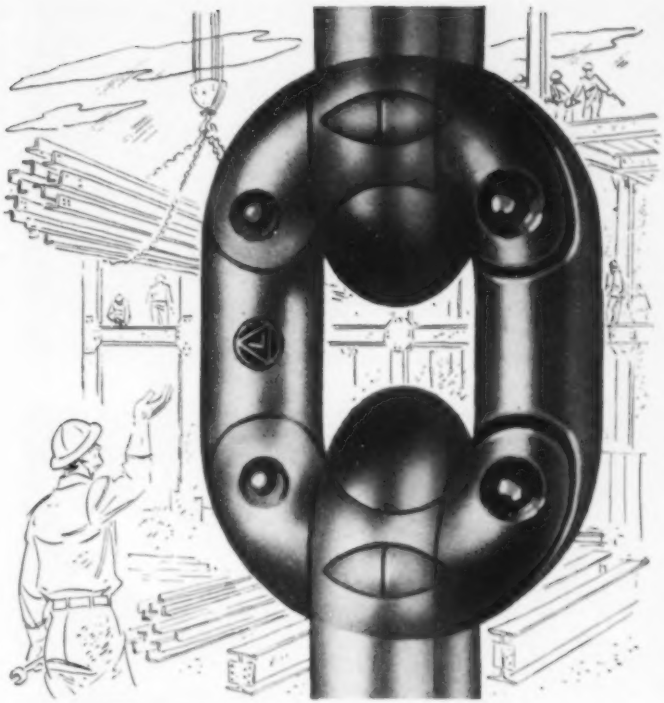
Pressures up to 100 p.s.i. can safely be handled by the Hydroblender. While it operates at any water pressure from 25 lbs. up, the most efficient spraying pressure is between 60 and 75 p.s.i. When water is above 100 p.s.i., a water pressure reducer is recommended. When pressure is less than 25 p.s.i., a booster pump should be used.

● Truck Scales

The Winslow Government Standard Scale Works, Terre Haute, Ind., offers the Type "S" motor truck scale and the "Contractors' Special" road material scale, available through distributors in all parts of the United tSates.

The Type S is designed for motor trucks, trailers, tractor trailers of 15-, 20-, 30-, and 50-ton capacity with platform lengths to 60 ft. This model has larger scale levers and a heavier structural steel weigh bridge for greater strength and rigidity. The weigh beam has four-point ball-bearing poise for simplified weighing operation. The stainless steel face plate has easily-read graduations and figures. Type registering (recording) weigh beams can be furnished at extra cost for installations having permanent records.

The Contractors' Special is suitable for weighing road material at job set-ups, stock piles, and crushing plants. It is readily transported and can be quickly assembled. Its simple design results in low maintenance cost and easy operation. Knife edges and wearing parts are protected by roller bearings.



SUPER-STRONG

FOR EXTRA SECURITY!

The Laughlin "MISSING LINK" with Interlocking Safety Lugs is stronger than the chain itself!*

Replace worn or broken links in any proof coil chain with Laughlin "Missing Links" — and your chain is stronger than it ever was before! That's because the perfectly matched halves put the load on the interlocking lugs with no strain on the rivets. You get this *extra* security at worthwhile savings in time and money, too, because "Missing Links" go on in a jiffy, much quicker and cheaper than welding. Made of drop-forged, heat-treated steel, super-strong "Missing Links" are available in all sizes from 3/16" to 1⅞" at your distributor's. Write for Laughlin Catalog #145, industry's data book of fittings . . . THE THOMAS LAUGHLIN COMPANY, DEPT. 3, PORTLAND 6, MAINE.

*Reg. U.S. Pat. Off.

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BUILT TO CARRY

BIG TONNAGE

Cincinnati Conveyor Belts get BIG tonnage on the move! They're built for that kind of job. They're built to carry heavy, "work horse" loads . . . at a low belt cost per ton.

Plant after plant has switched to the BIG tonnage-carrying Cincinnati Conveyor Belts. Ask the Cincinnati man for details.

THE CINCINNATI RUBBER MFG. CO. • CINCINNATI 12, OHIO

CINCINNATI CONVEYOR BELTS

• Tire-Replacing Method

An improved method of replacing cracked or worn metal tires on kilns, coolers and driers has been developed by the Stroh Process Steel Company, 1410 High Street, Pittsburgh 12, Pa. This method, which reduces production losses due to down time, is based on the use of a diagonally-cored split tire. By means of interlocking machined mating surfaces in the rim, this tire can be positioned in the field without tearing out a section of a shell or disturbing the shell's existing alignment. After positioning, the split is welded to make a full, solid ring, which has no machined bolt-held mating surfaces to loosen up under load and heat. It is claimed that the weld metal at the splits does not "hump up", and the tire rolls smoothly over the joint.

The only machine work required on the Stroh ring, over and above that of a solid ring, is the planing of the interlocking machined mating surfaces of the rim. This eliminates much expensive machining to close tolerances. Easier installation of the diagonally-cored design is reportedly achieved, since a kiln operator can normally handle a half ring with existing equipment, while in many cases a full ring requires the use of special cranes and outside riggers.

The shell is supported near the damaged tire with a cradle of oak planks, in order to back off the trunnion rollers. The old tire is burned off and the ring halves are positioned with one split at the top of the shell, which is centered with spacer blocks. After the tire is bolted to the shell, the top weld is made. In making this weld, the recommended procedure is to preheat the joint and peen the weld metal as it is laid in. The rollers are then repositioned, the load taken off the cradle, and the shell turned to bring the second split to the top. Upon completion of the welding of the second split, bolts are removed and the tire is riveted up. With rollers repositioned and cradle removed, the kiln is ready for operation.

These tires are machined from .35-.45 carbon fully annealed A.O.H. steel castings, A.S.T.M. Specification A27-46T Grade N. With the carbon on the high side, this material will show about 170-180 Brinell on the unworked, machined surface of the face, and will work-harden to about 190-200 Brinell. Without excessive sidewise flow of the material, a safe loading of about 10,000 lbs. per inch of face can be attained. This value, however, varies with the ratio of the diameters of the tire and roller.

• Perlite Plant

Perlite expanders will be interested in the announcement of the Johnston Manufacturing Company that a complete perlite expanding plant has been put on the market. A full scale model of the plant has been in steady operation for four months.

The Johnston perlite processing plant is a compact plant of the vertical type, featuring a fully automatic operation from feed hopper to bag. Automatic controls eliminate the necessity for highly skilled labor. The plant operates continuously, producing 24 to 30 4-cu. ft.-capa-

city bags per hour per unit. A built-in dust control system is said to permit operation within the city limits or inside buildings. The plant uses a Johnston low pressure 16 oz. burner, and either light grade gas or oil may be used for fuel.

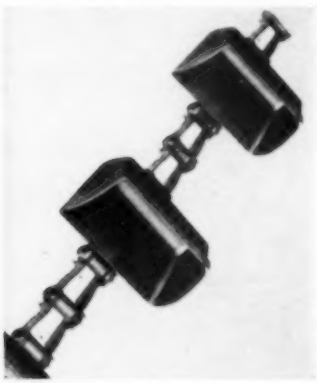
One of the outstanding features of the plant is that all parts are arranged so that one or several plants can be operated for limited or large production requirements. The separation hopper is designed for handling maximum furnace production and is arranged to separate and cool the processed perlite. The special cyclone was developed for handling perlite aggregate; also to further cooling and separating. A standard 4-cu. ft. bagger (or smaller if desired) is supplied with the plant thus eliminating any guess work in filling the bags with prescribed amounts of aggregate. A steel framework supports hood, cyclone, bagger and exhaust fan. (This supporting frame is optional; all parts can be furnished to be mounted on the purchaser's own building frame.) The Johnston Mfg. Co., 2825 E. Hennepin Ave., Minneapolis, Minn.

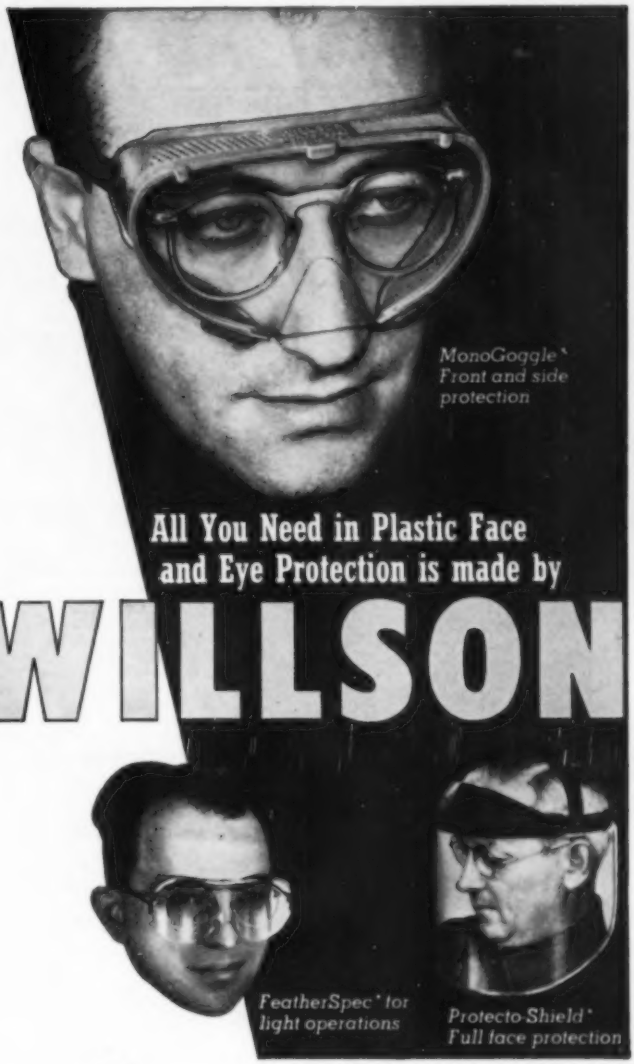
● Bucket Elevator Chain

Beaumont Birch Company, 1505 Race St., Philadelphia, announces the immediate availability of new, long-needed bucket elevator chains. These new Beaumont "Beaucalloy" elevator chains are made of heat-treated alloy steel.

Design features of Beaucalloy chains include: projecting guards which deflect material from chain joints; slotted boss ends which prevent the pin from rotating and protect the cotter pin from wear; connecing pins made of heat-treated alloy steel with a centerless, ground finish that greatly reduces friction; a single link barrel cast integrally with side bars and made of Beaucalloy steel; a barrel larger in size and 3/16 in. thicker on the side which receives wear from the connecting pin and wheel; and a special K-2 attachment which permits the use of either the new style Beaumont "Dove-tail" lock buckets or conventional type "A" buckets.

As a result of the improved design, the links *fold* into place on the sprocket or traction wheel and maintain almost steady contact throughout rotation, minimizing friction and wear on the inside and outside surfaces of the link barrel.



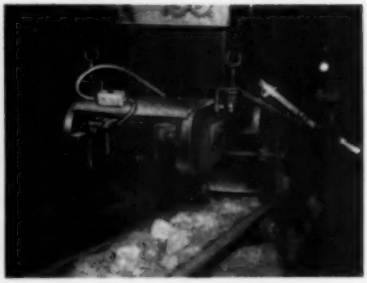


WILLSON*
Dependable Products Since 1870

These three types of protective devices, all with one-piece plastic lenses or visors and each with many variations, give you a wide selection to meet specific requirements of work hazards. Their light weight and comfortable fit insure workers' willingness to wear them for long hours on the job. Complete information on plastic protection and other eye and respiratory safety equipment is available in the new WILLSON catalog. Get your copy from our nearest distributor or write direct to WILLSON PRODUCTS, INC., 102 Thorn Street, Reading, Pennsylvania.

*T.M. Reg. U.S. Pat. Off.

SYNTRON
"Vibra-Flow"
VIBRATORY FEEDERS



Feeding Limestone onto Belt Conveyor

Feeding Rock to Crusher

For Material Handling at Modern Production Speed

Feeding from a few ounces to hundreds of tons per hour —

— of various types of bulk materials — from light fine powders to heavy coarse chunks — hot or cold — dry or damp —

— at instantly controllable rates a turn of the dial gives the operator a range of feeds — from a trickling dribble to a gushing torrent —

— feeding clinker to ball mills, hammer mills, grinders and crushers — lime to continuous hydrators, rock to crushers and to cars supplying kilns — ground limestone from dewatering screens — burned lime from kilns to collector conveyors — bulk materials from track hoppers — to bagging machines, etc.

IF YOU HAVE A MATERIAL FEEDING PROBLEM—

write, giving us a description of the material to be handled (weight per cubic foot, moisture content, etc.), a rough dimensional sketch showing how the material will be delivered to the feeder and where the feeder will discharge — whether an open trough or closed trough is required — and the tonnage discharge or feed required per hour.

Our Engineering Department will be only too glad to give you their recommendations.

SYNTRON CO.

385 Carson Homer City, Pa.

Pulverizers

Have you investigated our new
BRADLEY HERCULES MILL?
Unquestionably the last word in
Economy and Simplicity.
(Send for New Catalog No. 59)

BRADLEY PULVERIZER CO.
ALLENTOWN, PENNA.

● Hydraulic Scoop-Shovel

The Yale & Towne Manufacturing Company, Philadelphia Division, announces a new hydraulically-operated scoop-shovel for gravel, sand and similar loose materials.

The accessory is attached easily to the "Lift King" and "Worksaver" electric

and gas fork trucks for operation within the plant, in the plant yard, and in box cars and highway-truck trailers.

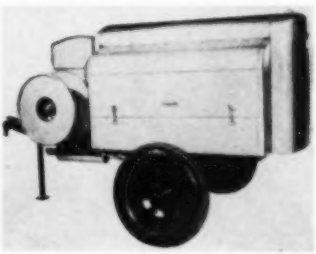
The scoop handles up to 27 cubic feet of material. It tilts upward from the horizontal scooping position to cradle the load during transport, and tilts downward to discharge the load completely when dumping. The device scoops at the ground level or digs into piled material. It dumps loads into bins, vats, hoppers, mixers and other receptacles at heights up to 130 inches. This scoop-shovel is designed to scoop up a full capacity load and to carry the load without loss in transfer.

This attachment is one of several new interchangeable devices designed to be fitted to fork trucks. These devices add versatility to the fork truck and permit increased economies when handling specific loads. In many applications these devices eliminate the use of pallets.

● Compressors

Gordon Smith & Company, Bowling Green, Ky., manufacturers of portable air compressors, have added two new compressors to their line. One is the Model 105-P, with 105-cu. ft. capacity (illustrated); the other is the 70-cu. ft. compressor Model 70-P.

Single-stage compressors, both new models are built with heavy-duty Chrysler industrial engines, using three cylinders for power and three for compression. Mounted on two pneumatic tires, they may be towed at truck speeds from job



to job. Other features of interest to users, as pointed out by the company, are as follows: low initial cost, low operating cost, no couplings, no clutch, and minimum fittings to break down or cause trouble. They are said to be practicable for use in rough terrain and in hard-to-get-at places.

Sizes and weights of the new models: Model 105-P—overall length, 115 in., width 65 in., height 62 in., weight (without hose reels), 1945 lbs.; Model 70-P—overall length, 103 in., width 65 in., height 62 in., weight (without hose reels), 1465 lbs.

● Heat-Treated Plate

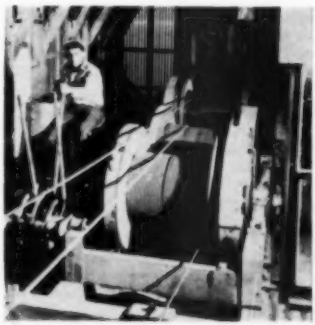
A special alloy steel heat-treated plate is now produced and offered by the Allied Steel Products, Inc., Cleveland 5, O. Its special uses are for the repair of construction, quarry and mine equipment. It reportedly has qualities which offer resistance to abrasion and impact. Tough and durable, it can be flame-cut and welded with ease. Other advantages cited are ease of forming, drilling, shearing, and punching. The product is known as "Tufaloy" wear-resisting plate.

Among typical applications listed for the use of Tufaloy are the following: truck bed and chute lining maintenance, repairing crusher liners, scoops, bucket floors and doors, rebuilding beds of vibratory feeders, etc.

● Three-Drum Hoist

An improved type of three-drum hoist, especially developed for operating Sauerman rapid-shifting drag scraper machines, was introduced during 1949 by Sauerman Bros., Inc., 534 S. Clinton St., Chicago, Ill. The new hoists are designed for gasoline, diesel, or electric drive.

In general design features, these new hoists resemble the Sauerman standard roller-bearing scraper hoists. Drum shafts are stationary and are pinned to the side stands. Drum and gears are mounted on Timken roller bearings. The clutches are positively pushed into and pulled from engagement through these double tapered bearings, no springs being used. The intermediate shaft is supported in a double row of ball bearings in low side stands. Drive is through a silent chain, totally enclosed in an oil tight guard case. Brakes are on opposite ends of drums from the clutches, thus eliminating heating of one by the other. Gears and pinions are steel, and of one-piece construction.



PLENTY OF PULL!

WITH WORLD'S LARGEST MAGNETIC PULLEY

Yes, sir, here's a magnetic pulley with *plenty* of pull! Especially designed to give complete tramp iron protection under heavy loads, this 60" diameter Electro-Magnetic pulley is installed ahead of a coal pulverizer at a large power station.

As an indication of its tremendous magnetic power — note how the 3" bolt has been pulled to the face of the pulley from nearly 2½ feet!

You may not require so large a pulley or magnetic separator to protect your machinery or purify your product, but whatever your requirements, consult STEARNS MAGNETIC — largest exclusive manufacturers of magnetic separation and transmission equipment. Write for Bulletin 303 today.

For certain light duty applications, STEARNS Permanent Magnetic Pulleys may be used. The best permanent magnetic pulleys money can buy, they require no wiring, are easily installed and eliminate operating expense. Ask for Bulletin 350-A.

Stearns

Electro and Permanent Magnetic Pulleys

Stearns MAGNETIC MANUFACTURING CO.

687 S. 20th St., Milwaukee 15, Wis.

trade notes

The Fuller Company, manufacturers of bulk pneumatic handling equipment, has assigned the state of Ohio to the Mann Engineering Company, 429 Penn Avenue, Pittsburgh 22, Pa., Fuller representative for many years in western Pennsylvania and West Virginia.

Seven executives of the General Electric Company's Apparatus Department have been named to new positions:

Neil Currie Jr. was promoted from manager of manufacturing to administrative assistant to the general manager.

Ernest E. Johnson is now manager of engineering, Large Apparatus Divisions.

Carl A. Salmonsen, former manager of Aircraft Gas Turbine Divisions, is the new manager of manufacturing, Large Apparatus Divisions.

Byron A. Case was promoted from assistant to the manager of engineering, to manager of engineering, Small Apparatus Divisions.

Frank T. Lewis, formerly manager of manufacturing, Aeronautic and Ordnance Systems Divisions, became manager of manufacturing, Small Apparatus Divisions.

Clarence H. Linder is now assistant to the general manager.

C. W. LaPierre was promoted from assistant manager to manager of the Aircraft Gas Turbine Divisions.

Glenn B. Heffelfinger, 60, assistant chief engineer in charge of large shovel design for Marion Power Shovel Company, died of a heart attack while driving his car near Columbus, O., last November.

Mr. Heffelfinger was associated with Marion Power Shovel Company for more than 25 years. From 1939 to the time of his death, he was in charge of large shovel and walking dragline design.

Creation of a new Mack Truck Company territorial sales unit, to be known as the Southwestern Division, with headquarters at Dallas, was announced by A. C. Fetzer, vice-president. Included in this realignment of Mack's sales territory are the company's already-established districts at Dallas, Houston, Oklahoma City and New Orleans. The territory covered by these districts includes all of Texas, New Mexico, Oklahoma, Louisiana, Arkansas (with the exception of Mississippi and Crittenden counties), and the southern half of Mississippi. It also includes the Republic of Mexico.

Henry H. Wilson has been appointed manager of the Canajoharie plant of Arkell and Smiths, Multiwall Bag manufacturers according to company officials. Mr. Wilson formerly was with Universal Match Company.

Appointment of C. H. Cowan as factory sales representative for Federal Motor Truck Company in Wisconsin and Upper Michigan was announced by Carl Loud, general sales manager of the company. Mr. Cowan will direct dealer relations and factory sales programs for the company from his Oshkosh, headquarters.

Cary Shoemaker has been transferred from field sales at Birmingham, Ala., to Knoxville, Tenn., by The Continental Gin Co.

He will cover eastern Tennessee as sales engineer of Continental's Industrial Division on Conveying, Elevating and Power Transmission Equipment.

The Hyster Company recently opened its new industrial truck retail sales and service building at 4445 Third Street, San Francisco 24, Calif., at an open house. Complete service for all makes of industrial trucks is provided in the 7,200-square feet of the maintenance shop.

R. L. Golden is manager of the organization, whose staff of 18 persons handles industrial truck sales and service in 43 counties of northern California and 11 counties of western Nevada.

extra service for your equipment when

"WEAR-RESISTED"

with AIRCO hardfacing alloys

Because of the hardness and other desirable characteristics of these alloys, they provide high resistance to all types of wear—abrasion . . . impact . . . heat . . . corrosion. One application often adds 2 to 25 times longer service life to *worn or new* parts . . . big dividends in savings of "down-time" and replacements.

There is an Airco alloy available for oxyacetylene flame or electric arc application to meet all types of wear conditions.

1. ***Severe abrasion and medium impact***
2. ***Shattering impact and abrasion***
3. ***Severe impact and abrasion***
4. ***Sliding abrasion and impact***
5. ***Extreme earth abrasion***
6. ***Corrosion and heat***

Constant research is developing new alloys to meet special wear problems as they occur.

If you have parts or tools subject to any type of wear, it will pay you to investigate the savings you can make in maintenance and replacement costs by using Airco Hardfacing Alloys.

For further information about Airco's complete line of "wear-resistant" alloys, write your nearest Airco office or Authorized Dealer for a free copy of the Hardfacing Alloys Catalog.

AIRCO **AIR REDUCTION**

Offices in Principal Cities

Headquarters for Oxygen, Acetylene and Other Gases . . . Calcium Carbide . . . Gas Cutting Machines . . . Gas Welding Apparatus and Supplies . . . Arc Welders, Electrodes and Accessories

R. W. Deemer has been appointed production manager and H. M. Conner credit manager of the Republic Rubber Division, Lee Rubber & Tire Corporation.

Mr. Deemer, formerly assistant sales manager, replaces H. W. Croysdale, who

H. M. Conner

R. W. Deemer

has resigned, while Mr. Conner advances from the position of assistant credit manager.

Both men have been with Republic for many years. The former started in the production department in 1926, transferred to sales in 1941 and was made assistant sales manager in 1946. Mr. Conner started in 1930 and was made assistant credit manager in 1937.

Marvin W. Smith, president of the Baldwin Locomotive Works, has been elected a director of the Westinghouse Electric Corporation.

Mr. Smith was elected executive vice-president of Baldwin in August, 1948, when arrangements were made for Westinghouse to purchase 500,000 shares of Baldwin common stock. He succeeded to the presidency of the company in May of this year. For 33 years before becoming a Baldwin executive Mr. Smith had been employed by Westinghouse. He joined the electrical firm immediately after graduating from Texas Agricultural and Mechanical College in 1915.

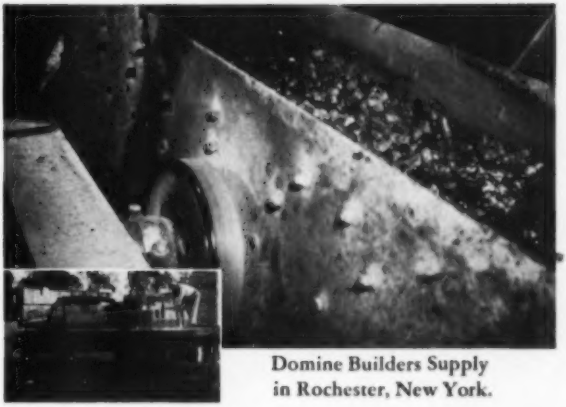
William J. Grant has been appointed manager of Southern sales for the National Bearing Division of American Brake Shoe Company. His headquarters will be in the Southern States Building in Richmond. Va.

Mr. Grant, formerly sales representative for the company's Brake Shoe & Castings and Southern Wheel Divisions, has been with Brake Shoe since 1940.

James R. Yeager has been named manager of the New York office of the Hercules Powder Company's cellulose products department, at 500 Fifth Avenue. Mr. Yeager was formerly lacquer marketing supervisor of the cellulose products department at Wilmington, Del.

The appointment of Robert L. Frazer as Joy representative in Spokane has been announced by Joy Manufacturing Company, Pittsburgh, Pa. Mr. Frazer has been an engineer with U. P. Coal Company in Rock Springs, Wyo., the Potash Company of America in Carlsbad, N. M., and the Freeport Sulphur Company in Freeport, Tex., successively.

This SECO SCREEN accurately screens 25 YARDS OF CINDERS PER HOUR



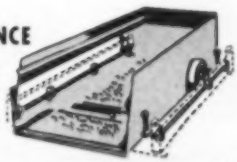
Domine Builders Supply in Rochester, New York.

Now in fifth year of service Never shut down for repairs

● This Seco 3′ x 10′ double deck screen pictured above is installed in the modern concrete block plant of Domine Builders Supply in Rochester, New York. Mr. Domine reports that during the nearly five years of service this Seco has never been shut down for repairs. Its excellent conveying action keeps the cinder load moving over the screen for high capacities . . . of accurately screened cinders. Although located high up near the roof of the plant, it operates so smoothly that no vibration passes into the platform on which it is mounted.

ADVANCED ENGINEERING PRODUCES BETTER PERFORMANCE

In outline is Seco's patented Equalizer Assembly. This controls the true circular action of the screen in operation. Increases tonnages . . . improves sizing . . . prevents bobbing . . . weaving, reduces maintenance.



Your screening problem is individual to us! Models for screening SAND, GRAVEL, CRUSHED STONE, AG-LIME and all types of minerals. Write for Screen Guide 203 and the name of your nearest distributor. Dept. L

SECO VIBRATING EQUIPMENT

SCREEN EQUIPMENT CO., INC.

1732 WALDEN AVENUE BUFFALO 21, NEW YORK

In Canada, United Steel Corp. Ltd., Toronto, Ont.

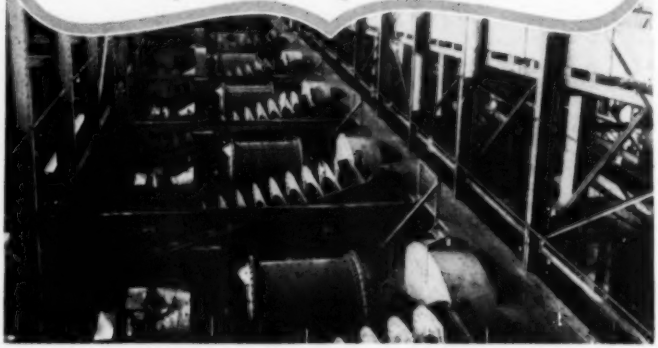
QUINCY MINING COMPANY

Saves 657,165 lbs. of Grinding Balls with SHEFFIELD MOLY-COP

TRADEMARK REG.

COPPER-MOLYBDENUM-ALLOY

Grinding Balls



Quincy Mining Company's six 8 ft. x 6 ft. Hardinge Ball Mills on Torch Lake, Hancock, Mich.

Based on a 9 month test period ending June 30, 1949, the consumption of Sheffield Moly-Cop Balls was less than ⅓ as much as forged steel balls previously used by Quincy Mining Company in the six mills shown above. The forged steel balls were consumed at the rate of 1.55 pounds per ton of ore ground as against .49 lbs. of Sheffield Moly-Cop balls.

Actual cash savings were more than $30,000 in nine months, despite the original higher per-ton cost of Moly-Cop balls. The economy of Moly-Cop Balls has been proved in mining operations all over the world.

The harder martensitic structure of Moly-Cop Grinding Balls, their toughness right to the core, are the reasons for this longer grinding life and grinding economy. Your own ore-reduction costs can be reduced considerably, when you charge your mills with Moly-Cop Grinding Balls.

Carbon and Alloy Steel, Ingots, Blooms, Billets, Plates, Sheets, Merchant Bars, Steel Joists, Structural Shapes, Road Guard, Reinforcing Bars

Welded Wire Mesh, Wire Products, Wire Rods, Fence, Spring Wire, Nails, Rivets, Grinding Media, Forgings, Track Spikes, Bolt and Nut Products

SHEFFIELD STEEL
CORPORATION
HOUSTON KANSAS CITY TULSA

Export Representative:
ARMCO INTERNATIONAL CORPORATION
Middletown, Ohio

Arkell and Smiths, Multi-wall Bag manufacturers, have announced the appointment of William F. Nesbit to the sales staff of their Texas Sales Division. Mr. Nesbit will operate out of the Houston office.

The Dorr Company, Engineers, announces the removal of its general offices from 570 Lexington Avenue, New York, N.Y., to larger facilities at Barry Place, Stamford, Conn. A branch office will be continued at 570 Lexington Avenue in New York.

A reorganization of the sales and engineering department of The Fawick Airflex Company, Inc., manufacturers of Industrial clutches, was recently announced by R. S. Huxtable, vice-president and general manager.

John V. Eakin, formerly Southwestern district manager, was appointed assistant sales manager, and J. S. Walsh was named assistant chief engineer.

Frank C. Warth was appointed Southwestern district manager with offices in Fort Worth, Tex., and C. H. Lay was appointed Chicago district manager with offices in Evanston, Ill.

The Brown Equipment and Manufacturing Co. recently completed the construction of a new manufacturing plant adjacent to its present plant near Charlotte, N. C. The new Brown tractor will be manufactured here, with the previous facilities devoted to service and the warehousing of automotive parts and supplies.

The Brown Equipment and Manufacturing Co. has been producing both tractors and trailers for over 10 years. Present expansion plans call for the production of power equipment at the Charlotte location with trailer production concentrated at Taunton, Mass. Service and parts and supplies are provided by Brown Equipment at five strategic locations in the East.

John A. Larigan has been appointed sales representative of the St. Regis Paper Company's Multiwall Bag Division at Minneapolis, Minn. He formerly was in charge of the St. Regis field promotion staff with headquarters in New York City.

At the same time announcement was made of the appointment of Howard C. Bryan as field engineer, representing the company in the Minnesota area. Mr. Bryan will also participate in bag sales activities.

American Manganese Steel Division of American Brake Shoe Company announces the appointment of the Whitehead Metal Products Company, Inc., as distributors of its complete line of Amsco welding products. This line consists of various types of rods and electrodes for hard facing and repair work, including the newly-developed tungsten carbide rods .

The Whitehead Company operates warehouses in major cities in five Eastern states including New York, New Jersey, Pennsylvania, Massachusetts and Maryland.

legal decisions

By LEO T. PARKER
Attorney at Law
Cincinnati, Ohio

Recently a reader asked a timely question, the answer to which will prove of value to all readers in future litigation. Here is the question: "If a contractor follows plans and specifications prepared by a city engineer, who is liable if the finished job is inefficient?" The answer is: "According to a recent highter court, the contractor is liable."

For illustration, in *Brasher v. City of Alexandria*, 41 So. (2d) 819, reported August, 1949, the testimony showed facts, as follows: A contractor named Brasher entered into a written contract with a city. Brasher agreed to furnish "all material and labor to construct an extension of the municipal sanitary sewer system." The contract contained a clause which provided that Brasher must perform the work in *strict* accordance with plans and specifications prepared by the city engineer.

The city engineer clearly specified in the plans and specifications *wooden boards* as a stabilizer for the sewer pipes. During the course of work Brasher was confronted with a serious soil condition which required concrete cradles instead of wooden boards called for in the plans and specifications. He notified the engineer, but to no avail. Brasher then proceeded to lay the pipes in the trench, as provided in the specifications, using wooden boards as a stabilizer. These boards soon proved to be an inadequate brace for the load sustained by the pipes. As a result 78 pipes on this particular section of the sewer line collapsed.

Soon afterward the city engineer requested Brasher to make necessary repairs and install concrete cradles. Brasher refused to do so, stating that he had strictly adherred to the engineer's plans and specifications, which specified wooden stabilizers. Then the city employed another contractor to make the proper and necessary repairs at a cost of $13,588, and deducted that sum from Brasher's final payment on the contention that he violated the terms of the contract.

In subsequent litigation the higher court held that Brashier was *at fault* although he had followed the plans and specifications prepared by the engineer. Hence Brasher must bear the $13,588 expense of repairing the sewer pipes and installation of the concrete stabilizers. This court said:

"The contractor was obligated to construct the sewer line complete, to correct any deficiencies therein, and to put the entire system in working order prior to final acceptance by the city. The city therefore properly deducted the item of $13,588.45, the cost of repairing the sewer from the balance due on the contract. . . . I am now persuaded that, since the contractor was obliged to lay the pipes to grade, he was required, in the performance of that duty, to provide bracing for the pipes, if it became necessary as the result of soft soil or other conditions."

For comparison, see *Magnan & Company v. Fuller et al.*, 222 Mass. 530. This court said:

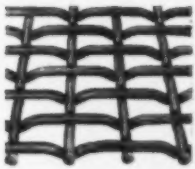
"When a contractor enters into a contract to erect a structure in accordance with plans and specifications, which are open to inspection, there is no implied warranty or agreement on the part of the owner that the work can be done according to the plans and specifications, or that, if so done, it will be safe. It is the duty of the contractor who proposes to enter into a contract to examine the contract, plans and specifications, and to determine whether it is possible to do the work before entering into the en-

NEW FARREL-BACON CRUSHER
has many advantages

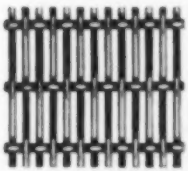
Design features of this 36 x 30 E stone crusher include: (1) Meehanite frame, sectionalized when necessary; (2) removable water cooled bearings; (3) improved design of swing jaw bearing; (4) force-feed oil lubrication, or circulating system if desired; (5) split flywheels; (6) flat or V-belt drive.

Write for further details or engineering help. BA-1

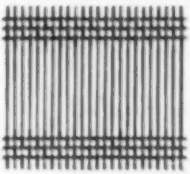
FARREL-BACON
ANSONIA, CONNECTICUT



Specify Roebling Roeflat
for maximum wearing surface and accurate sizing



Specify Roebling Roeton
for increased screening capacity



Specify Roebling Roeslot
for topmost screening capacity

WHATEVER your requirements, you'll meet them most efficiently and economically with the right Roebling Woven Wire Screen. Besides the inherent advantages of the constructions pictured above, each of the three is available in Abraso (high carbon steel), Roetemp (oil tempered steel) and in Stainless Steel to beat your own specific problems.

Mail coupon below for information that may help improve your screening operations.

FOR WOVEN WIRE SCREENS . . .

Today it's Roebling!

WOVEN WIRE FABRICS DIVISION
JOHN A. ROEBLING'S SONS COMPANY
ROEBLING, NEW JERSEY

Woven Wire Fabrics Division
John A. Roebling's Sons Co., Roebling, N. J.
Gentlemen: Please send my copy of Catalog W-903, giving full information about Aggregate Screens.
Name .....
Company .....
Address .....
City ..... State .....

A CENTURY OF CONFIDENCE

"I can't afford to take a chance on X-SHOCK!"

Herb Fisher, rigging foreman for Morrison-Knudsen Co., Inc. and Peter Kiewit Sons Co., at Grand Coulee Dam, knows plenty about what sudden shock loads can do to wire rope fastenings. He knows that "x-shock"—the unforeseen blow that engineering can't calculate—can snap cheap clips like so many clothes-pins. "I stick to genuine CROSBY Clips," says Herb. "That drop-forged strength is mighty good insurance!"

That's why industry uses more

CROSBY CLIPS

than all other drop-forged wire rope fasteners!

This is the AMERICAN HEAVY DUTY UTILITY SNATCH Block . . . other AMERICAN wire rope blocks from 1½ to 250 tons capacities.

There is only one genuine CROSBY Clip—identified by the famous red U-bolt. Drop forged from finest steel. Hot dip galvanized—a thin, tough, chip-proof zinc coat. Machine cut threads, chamfered bolt ends. Sizes for ⅛" to 3" wire rope—at distributors everywhere.

MAIL THIS COUPON FOR FREE BOOK

34

American Hoist & Derrick Company

St. Paul 1, Minnesota

9002

● Please send free book showing proper methods of applying CROSBY Clips.

NAME _____

COMPANY _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

gagement. Having made his contract, he (contractor) must fulfill it or bear the consequences of a breach."

Again see *City of Millville v. Empire*, 85 A. 223. This court held that if destruction of a work or job during the course of construction is caused by defective, inadequate, or insufficient plans and specifications furnished by the owner or city, the contractor is, nevertheless, liable.

On the other hand, it is well to know that a contractor may protect himself by inserting a clause in the contract that the owner or city "guarantees sufficiency" of the plans and specifications. Then the contractor is not responsible if he follows the plans and specifications which are in error. See *Passaic Valley Sewerage Com'rs v. Tierney*, 3 Cir., 1 F. (2d) 304; Kinnear, Inc., v. City of Lincoln Park, 260 Mich. 250.

Not Regular Trade

According to a recent higher court, a construction employee injured while working for an employer whose regular trade is not related to construction work cannot recover compensation under the State Workmen's Compensation Act.

For example, in *Prater v. Sun Indemnity Company of New York*, 38 So. (2d) 663, it was shown that a doctor owned rental properties from which he derived income. He hired employees to do general concrete masonry and carpentry work on this property. In course of the work an employee was injured.

In subsequent litigation the higher court held that the employee could not receive compensation under the State Workmen's Compensation Act. The court said:

"It is not enough that an employee is performing work within designated trades, businesses or occupations under the compensation statute, but work must be done in course of the employer's trade."

Since the employee is not entitled to receive compensation, he may sue the doctor for damages. However, the employee cannot recover damages unless he proves that the injury resulted from negligence of the employer, whereas under the State Workmen's Compensation Act an employee may recover compensation for all injuries sustained while attending to his regular work.

Reasonable Time

All higher courts hold that if no time is specified as to when a contract shall be terminated, it must be terminated within a "reasonable time". Hence, one who fails to complete his obligation of a contract within a reasonable time is guilty of breach of the contract.

For example, in *Detmer v. Miller*, 220 S. W. (2d) 739, it was shown that one Detmer was engaged in the operation of a lime crusher. A man named Miller had an agency for the sale of Ford automobiles. Detmer and Miller entered into an agreement whereby Miller was to sell Detmer a used Ford automobile in return for 755 tons of lime figured at one dollar a ton. According to the agreement, Miller was to get the lime at the crusher and haul it away in his own trucks.

Nothing was said as to when Miller would call for the lime, or within what period of time the 755 tons would be taken away. Detmer took delivery of the automobile at once. During the following five months Miller hauled away a total of 418 tons. During the next eight months Miller hauled away about 84 tons. Then Detmer closed his plant owing Miller 253 tons of lime. Four months later Detmer with his son drove to the business district and parked the automobile on the street. When he returned about thirty minutes later, the automobile was gone, and some short time afterwards they were informed that during their absence Miller had taken possession of the automobile.

Detmer sued Miller for $550 actual damages and $420 punitive damages. Miller appealed to the higher court which approved the verdict, and said:

"With it a conceded fact that defendant (Miller) had never received 255 tons of the lime to which he had been entitled, the whole question of whether plaintiff (Detmer) was in default depended upon whether he or defendant was responsible for the nondelivery of the balance of the lime. . . It is fundamental in the law of contracts that when a contract is silent as to the time for its performance, the law will imply that it shall be performed within a reasonable time."

The court said further that since Miller had delayed 13 months in calling for and taking delivery of the full quantity of lime, he had delayed an unreasonble period of time, thus forfeiting his right to payment.

Another important point of law decided by this court is that one who breaches a contract and also performs an act damaging the other contracting party is liable for additional or punitive damages. In this case Miller was held liable to Detmer not only for $550, the value of the automobile which he took from Detmer, but for additional $420 punitive damages. In other words, Miller was held liable for additional $420 punitive damages for "malice" in wrongfully taking possession of the automobile. The court said:

"While proof of malice is required as a basis for the allowance of punitive damages, it is in no sense necessary that it be actuated by personal ill will, spite, or hostility. On the contrary, it is enough if there is evidence of legal malice, which is the intentional doing of a wrongful act without just cause or excuse."

Sand Blasting Machine Explodes

According to a recent higher court one who purchases a mechanical device is legally obligated to inspect it thoroughly and know that it is safe to use before giving it to an employee to operate.

For example, in *Jordan v. Collier,* 223 S. W. (2d) 544, the testimony showed facts, as follows: One Jordan purchased a sand blasting machine, and hired an employee named Collier to operate it. Collier was killed when, due to a defect in the compressor, the tank exploded. Collier's mother sued Jordan for $20,000

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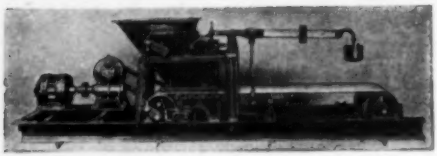

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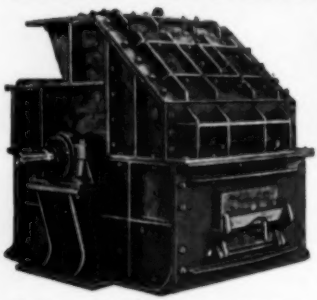

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damages and proved these facts: (1) the air tank furnished Collier by Jordan was not sufficiently strong to withstand the pressure used; (2) furnishing such a tank was Jordan's negligence; (3) Jordan failed to test the air tank properly before using it.

Jordan attempted to avoid liability on the contention that the manufacturer of the sand blasting machine was solely liable. Nevertheless, the higher court held Jordan liable for $10,000 damages, because the defect or insufficient strength of the tank which exploded could have been discovered had Jordan thoroughly inspected it.

This court explained that all employers are obligated, from a legal standpoint, to use a high degree of care to know that a mechanical device furnished to an employee is free from defects. The court said further that the employer is not liable for injuries to an employee if the testimony shows that the defect which caused the injury was hidden and not capable of being discovered by careful inspection. Under the latter circumstances the manufacturer of the device is liable for resultant injuries to the user of the device.

Old Invention

Moderen higher courts consistently hold that an inventor cannot obtain a patent on a well known or old combination of mechanical means to produce a desirable result.

For example, in *Application of Jaeger*, 177 Fed. (2d) 211, an inventor filed an application for a patent for improvements in "sealing means" for concrete mixers. The inventor used a gasket made of synthetic rubber positioned between the rotatable mixing drum and a non-rotatable hopper.

The United States Court of Customs and Patent Appeals refused to award a patent to the inventor because of lack of invention over the prior and old patents.

In other words, sealing means for concrete mixers, such as flat ring sealing members formed from lubricant and mix-resistant flexible material, are old and not patentable.

Here is a dependable rule to avoid wasting money in filing applications for *void* patents. *Don't* file an application for a patent on: (1) an invention previously patented or described in a magazine, newspaper or other publication in this country or the whole world; (2) a mere result; (3) a property of matter; (4) an aggregation or assembly of old parts which do not act simultaneously *together* to produce a *unitary* result; (5) a mere system or plan for doing something; (6) devices invented by mere "mechanical skill" which could have been invented by the average mechanic, and which do not require "inventive ability"; (7) devices that are unlawful, inoperative or impractical; (8) a scientific principle although it produces a new and desirable advantage; (9) devices that are not new or useful; (10) or a mere idea without operative means or mechanism to put it into practical usage.

No Portal to Portal

According to a recent higher court, the operator of a plant does not violate any law if he adopts a rule requiring employees to be at their places of work 10 minutes before starting time and the men are not paid for the 10 minutes.

For example, in *Green v. Planters Company, Inc.*, 177 Fed. (2d) 187, it was shown that a sign was erected in an employer's plant which stated that all employees must go directly to their work, and be in their places ready for work after punching in, when the 10 minute whistle "blows."

In subsequent litigation the higher court held that the employees could not recover portal-to-portal pay. This court said:

"If it be supposed that the employees were present at their places of work ten minutes before 7 o'clock, and were not paid for this interval, it is obvious that the time spent was negligible."

Fair Labor Standards Act

According to a recent higher court a contract is valid and binding under which an employee compromises with his employer and accepts wage payments lower than specified by the Fair Labor Standards Act.

For example, in *McCloskey v. Eckart*, 164 Fed. (2d) 257, an employee sued his employer for $2,005 for overtime and penalties under the Fair Labor Standards Act. During the trial the employer proved that the employee had signed a compromise release and accepted a payment as total for all wage payments based on the Fair Labor Standards Act. In holding the employer not liable for further payments, the higher court stated:

"A release executed by an employee in payment of sum by the employer precluded recovery of damages under Fair Labor Standards Act in view of Portal-to-Portal Act effectuating compromises."

Circumstantial Evidence

According to a recent higher court, no direct proof is necessary that an employee was injured within the scope of his employment, in order that he may receive compensation under the State Workmen's Compensation Act. In other words, circumstantial evidence is sufficient to justify a verdict favorable to the employee or his dependents.

For example, in *Lapinsky's Case*, 88 N. E. (2d) 642, the testimony showed facts, as follows: The employer is engaged in manufacturing bituminous concrete. A portion of the plant consists of four large silos, arranged in line, the tops of which are about 50 feet from the ground. Only one silo may be filled at a time, but by means of a switch the direction of the conveyor belt may be reversed so that the material will be carried to the other silo. This switch is located near a catwalk. One day at 2:45 p. m. an employee was instructed by the foreman to "go up to the silos and turn the switch so as to operate the conveyor belt to discharge sand into the No. 1

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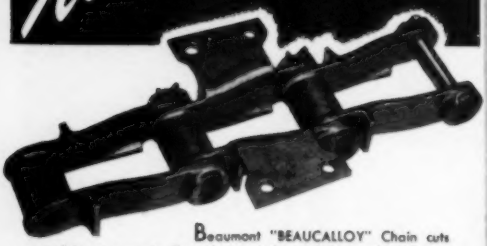

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silo." On the following morning about 8:30 his body was discovered immersed in sand in silo 1. The cause of his death was asphyxiation. The accident was unwitnessed. The employee's body was found approximately 40 feet from the switch which the employee had been directed to operate.

The employee's dependents sued for compensation under the State Workmen's Compensation Act.

The lower court denied compensation on the grounds that no testimony was given which proved that the injury causing death arose out of and in course of employment. The higher court reversed this decision saying that circumstantial evidence was sufficient to justify allowance of compensation.

Telephone Cables Damaged

Considerable discussion has arisen from time to time over the legal question: Is a contractor liable for damage to underground telephone cables when making emergency repairs to a water main? The answer is yes, if the telephone company proves that the contractor's employees failed to exercise reasonable care to discover the cable, and avoid the injury.

For illustration, in *Cincinnati and Suburban Bell Telephone Compny v. City of Cincinnati*, 85 N. E. (2d) 393, the higher court held that a telephone company may recover for damages to its conduits sustained when employees of either a city or contractor, while repairing a break in a water line in a street, broke through the conduits and cut the telephone cables.

No Compensation

Originally the courts recognized that the unemployment compensation law was enacted for a beneficent purpose, and should be construed in favor of unemployed persons. Recently, however, the higher courts have decided that the law is intended to relieve "consequences and vicissitudes" of unavoidable and *enforced* employment. Hence, an employee who refuses to look for work, or take a job he can normally perform, will not be awarded compensation.

For example, in *Department of Industrial Relations v. Wall*, 41 So. (2d) 611, it was shown that an employee worked as a "spare hand" in a plant. He had worked in this capacity for about six months when he was transferred to another department and with the same scale of pay. The employee said he was unable to do the heavy work, and filed an application for compensation under the State Workmen's Unemployment Act. The higher court refused to award compensation, and said:

"The unemployment compensation law does not contemplate that a job must seek out the man and coax him to come to work. It presupposes some effort on the part of the employee to secure work. . . . The unemployment compensation law was not intended to afford payment of unmerited doles or to provide vacations with pay."

For comparison, see *Industrial Relations v. Tomlinson*, 251 Ala. 144. Here an employee became unemployed due to his refusal to work as a plant watchman. He filed a claim for benefits, and regis-

tered for work with the unemployment office. He reported diligently to that office weekly. However, he called on none of his former employers seeking work, nor did he seek a job of any other kind. The higher court refused to award unemployment compensation, saying:

"He was waiting for work to seek him out. Although his physical infirmities were not of such a nature as to prevent him from performing some of the type of work in which he had been engaged, he did not seek a job."

Sells to Minor

The higher courts very consistently hold that a valid sale cannot be made with a minor. If he makes a contract, he may *at any time* cancel it and demand his money back.

For example, in *Gage v. Moore*, 198 Pac. (2d) 395, it was shown that a minor purchased a considerable quantity of material and paid in cash at the time of the purchase. A few days later the boy demanded the seller to take back the part of the material he had not used and refund the full purchase price. The seller refused to take it back or refund the money paid, and the minor filed suit.

The higher court held that the seller must take back the materials and refund the purchase price. This court said:

"If he was under age, he (minor) could rescind without offering to restore any part of the consideration."

For comparison, see *Bombardier v. Goodrich*, 110 A. 11, 9 A.L.R. 1028. This court said:

"The right of an infant to rescind his contract is unaffected by the fact that his father was present advising and approving the transaction. The assent of the father adds nothing to the binding force of an infant's promise."

Last Employer Liable

Generally speaking, the last employer of an employee who contracted silicosis is liable for compensation payments.

In *Kenne v. Industrial Commission*, 205 Pac. (2d) 829, the testimony showed that silicosis might have had its origin in the employ of some previous employer. However, the higher court held the last employer liable for payment of compensation to the employee if the testimony showed that the employee had performed his work successfully for a number of years.

Greater Weight

According to a recent higher court, testimony of an employee's physician has greater weight than testimony of the employer's several physicians.

In *Stralovich v. Sunshine Company*, 201 Pac. (2d) 106, it was shown that dependents of an employee who died of silicosis applied for compensation. The dependents received favorable testimony by a doctor who had daily attended him from the time he was taken to the hospital until his death, and took X-rays, sputum tests, blood cultures and made stethoscopic examinations of the chest.

The higher court allowed compensation, holding that testimony of the above-mentioned doctor had greater weight than physicians who testified in favor of the employer on hypothetical statement of facts and on X-rays.

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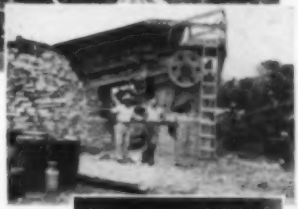

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Docket 87414 (2)—Proposed to establish on sand, all kinds, and gravel, in open-top cars, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to cubical or visible capacity, actual weight will apply from Akron, O., to Cleveland, O., 90 cents per 2000 lbs.

Docket 87421 (1)—Limestone, ground or pulverized, unburned, carload minimum weight 60,000 lbs., from Carey, McVittys and other Northwestern Ohio Group 1 origins.

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Martin and Prestonsburg	3.34	3.84
Van Lear Jct.	3.22	3.72

Docket 87434 (2)—Proposed to establish on limestone, ground or pulverized, unburned, carload minimum weight 30 tons from Woodville, O., to Library, Pa., 298 cents net ton in open cars and 348 cents net ton in closed cars.

Docket 87446 (2)—Proposed to establish on limestone ground or pulverized, unburned, carload minimum weight 30 tons from Green Castle, Ind., to Lima, O.

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Bulletin G-1427 (shippers)—Proposed to establish a rate on limestone, ground or pulverized, unburned, carload minimum weight 60,000 lbs. from Woodville, O., to Panther Gulch, W. Va., of $3.83 per net ton, in open cars and $4.32 in closed

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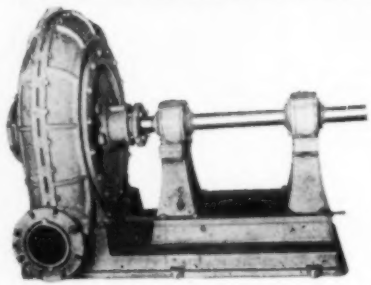

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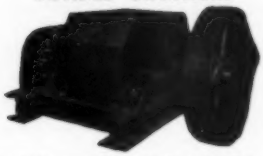

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cars, including ExParte 162-B, 166-C and 168-A increases, in lieu of present rates of $4.90 and $5.39 respectively.

Bulletin G-1436 (shippers)—Proposed to establish a rate on stone dust, carload minimum weight 60,000 lbs. to C. & O. Ry. stations Index 5380, Barboursville, W. Va., to Index 6140, Emmett, W. Va., from Kimballton and Ripplemead, Va., $3.36 and from Pounding Mill, Va., $3.23 per net ton, including ExParte 162-B, 166-C and 168-A increases.

ILLINOIS FREIGHT ASSOCIATION DOCKET

Docket IRC 511-916—Proposed to establish on crushed stone, carload minimum weight 90 percent of marked capacity of car, except that when car is loaded to full cubical or visible capacity, actual weight applies from Anna, Ill., to Carbondale, Ill. Present, 96 cents; proposed, 65 cents. (To be published as truck competitive rate.) Rates are in cents per ton of 2000 lbs. and include ExParte 162-166 and 168 increases.

Docket IRC 511-763-A—Stone, crushed or ground, minimum weight 90 percent of marked capacity of the car, except that when car is loaded to full cubical or visible capacity, actual weight will apply, from East St. Louis, Ill., to Peoria, Ill. Present: No specific commodity rate in effect via the Wabash. Proposed: $1.29 per net ton (basic); $1.44 per net ton (X-162); $1.58 per net ton (X-166). Subject to X-168 increases.

SOUTHWESTERN FREIGHT BUREAU DOCKET

Docket 51139 (I)—Gypsum, crude or crushed, (not ground), Carla, La., to Mobile and Birmingham, Ala. Establish rates per net ton of $3.40 to Mobile, Ala., and $3.60 to Birmingham, Ala., on gypsum, crude or crushed (not ground), in bulk, carload minimum weight 80,000 lbs.

Docket 51213 (I)—Proposed to establish on gypsum, crude, or crushed (not ground), Carla, La., to Houston, Tex., rate of $2.60 per net ton, in bulk, carload minimum weight 80,000 lbs.

WESTERN TRUNK LINE NEW APPLICATIONS

Docket E-41-1174 (shipper)—Limestone, crushed or ground, from Omaha, Neb., to stations in group 3 (Chicago, Ill.)

In Cents per Ton of 2000 Lbs. Subject Only to X-168 Increases Proposed

Minimum Weight	Minimum Weight
54,000 lbs.	40,000 lbs.
19¾	22⅝

Rate applies only on shipments moving in closed cars or in open-top cars protected by tarpaulin or other protective covering.

Docket E-41-1181 (shipper)—Stone, broken or crushed, carload minimum weight 90 percent of marked capacity of car, from Guernsey, Wyo., to Hemmingford, Neb. Proposed, 135 cents per ton.

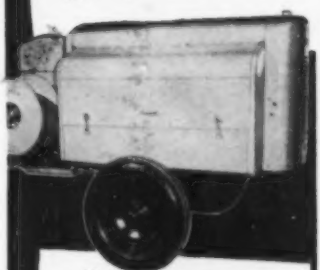
PACIFIC SOUTHCOAST FREIGHT BUREAU DOCKETS

Docket (X) R-566 (shipper)—Plaster, gypsum and plaster products (except Plasterboard), carload, from Phoenix, Ariz., request for rates in cents per hundredweight to following New Mexico points:

Subject to X-162, X-166, and X-168 Series, Minimum 20 Tons

Spalding 25
Silver City, Santa Rita, Fierro.. 26

Bring Compressor Costs Down!



Use the Economical
SMITH 105-P Compressor

The new Smith 105-P will handle the majority of your compressor jobs, for less. Powered with Chrysler's newest and largest Industrial engine—Ind. 35, six cylinders, 4" bore, 5" stroke, 377 cu. in., 3" crankshaft, 7 main bearings, sodium cooled valves and Stellite valve seats for extra heavy duty and long life. Compressor valves are stainless steel disc type with Manganese Bronze seats. Delivers 105 cubic feet per minute. Equipped with improved type pilot valve and simplified control for efficient, long life with minimum attention.

Write for literature and prices.

Also write for information on
The New SMITH
MODEL 70-P COMPRESSOR

SMITH Air Compressors

Gordon Smith & Co. Bowling Green, Ky.
401 COLLEGE STREET

NEW IMPROVED DESIGN

JEFFREY BUCKET ELEVATORS

- Welded Angle Casings —heavy gauge steel Dust tight—Water tight
- Improved Head and Boot Sections
- Increased Bearing Protection
- Removable Hood
- Large Clean-out Doors both sides
- Large Inspection Doors for access to chain and buckets
- Take-ups furnished for Head or Boot if desired—self-aligning, plain or anti-friction bearings

Chains • Conveyors of all kinds • Feeders • Car Pullers • Bin Valves • Dryers and Coolers • Packers • Skip Hoists Screens • Crushers and Pulverizers Belt Idlers • Transmission Machinery Replacement Parts

- These are only some of the features incorporated in our Standard Bucket Elevator line. A type and size to meet any requirement. Complete drawings available. Jeffrey Bucket Elevators are backed by years of engineering experience and hundreds of installations. May we hear from you?

THE JEFFREY MANUFACTURING COMPANY Established 1877

917 North Fourth St., Columbus 16, Ohio

Complete Line of Material Handling, Processing and Mining Equipment

Baltimore 2	Chicago 1	Detroit 13	Jacksonville 2	Pittsburgh 22
Birmingham 3	Cincinnati 2	Harlan	Milwaukee 2	St. Louis 1
Boston 16	Cleveland 13	Houston 2	New York 7	Salt Lake City 1
Buffalo 2	Denver 2	Huntington 19	Philadelphia 3	Scranton 3

Jeffrey Mfg. Co., Ltd., Head Office & Works: Montreal

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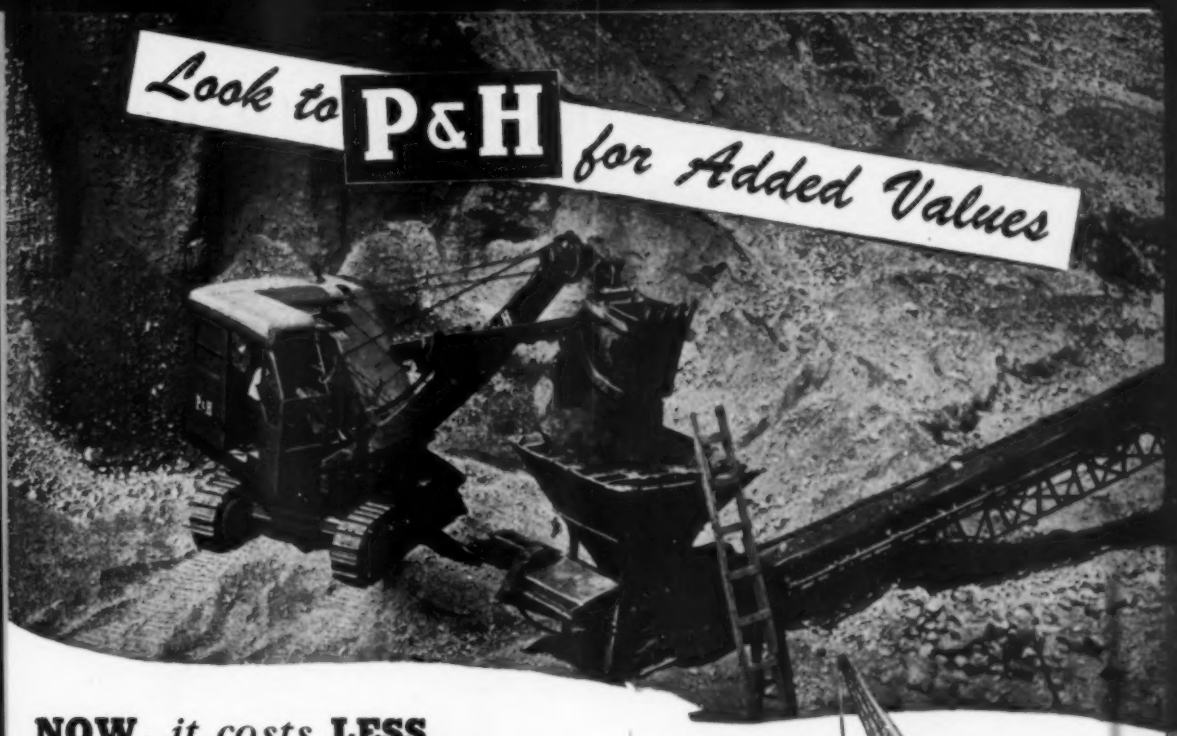


NOW, *it costs* LESS *to do your jobs* BETTER!

In every one of these operations, materials are being moved and handled for less—thanks to the continuous, cost-cutting performance of the P&H.

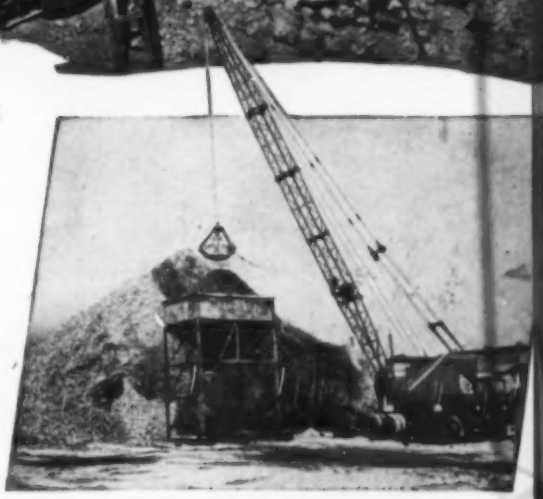
Of the many P&H Added Values, these alone will account for important savings for you. Add all the others and you know why so many operators, mindful of today's changing conditions, are putting P&H Excavators in their pits and yards.

HYDRAULIC CONTROL—years-ahead engineering makes P&H's faster and simpler to operate with a velvety action that's easier on man and machine.

PLANETARY CHAIN CROWD—P&H pioneered it; made it more accurate, more rapid reversing. Outlasts 25 to 30 crowd cables.

TRUE TRACTOR TYPE CRAWLERS—smoother, more maneuverable and dependable travel; easier steering; ends usual crawler troubles.

WELDED CONSTRUCTION THROUGHOUT—rolled alloy steels make them huskier, shockproof; no needless deadweight.



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HARNISCHFEGER CORPORATION, *Excavator Division*
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Gentlemen:

Send complete information covering P&H models from ——— to ——— cubic yards. ( ) Also P&H Truck Cranes. I am attaching coupon to my business letterhead.

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Company ..... Position .....

Address .....

City ..... Zone ..... State .....

FOR LOWER OPERATING COSTS PER HOUR

If your replacement and down-time costs are getting out of hand—investigate Thermalloy for kiln parts.

Thermalloy was developed specifically to take heavy loads and rough usage . . . to resist corrosive gases, excessive heat (up to 2100°F) and abrasion. In scores of kiln installations, Thermalloy has proved it can give longer service—reduce maintenance costs on the job.

Thermalloy is not just one alloy. It's a *group* of alloys—each developed to meet a specific heat and abrasion problem. An Electro-Alloys engineer can show you how Thermalloy kiln parts can lower your operating costs—assist you in selecting the design best suited to your needs. Call your nearest Electro-Alloys Office, or write Electro Alloys Division, 2005 Taylor Street, Elyria, Ohio.

*Reg. U. S. Pat. Off.

FEED PIPES • CHAIN: CONVEYOR, DRAG • BURNER NOZZLES
OUTLET GRATES • FEED CHUTES • KILN SHELL SEGMENTS • KILN DAMPERS

Specify THERMALLOY* for heat and abrasion resistance . . . CHEMALLOY* for corrosion resistance

***Write for Technical Booklet*—Cast 26% CR. 20% NI Alloys**

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COMPANY

ELECTRO-ALLOYS DIVISION
ELYRIA, OHIO

Aggregate Costs Reduced Through Laboratory Tests

Typical Example — How Allis-Chalmers Basic Industries Laboratory Helps Solve Problems in Rock Products Industries

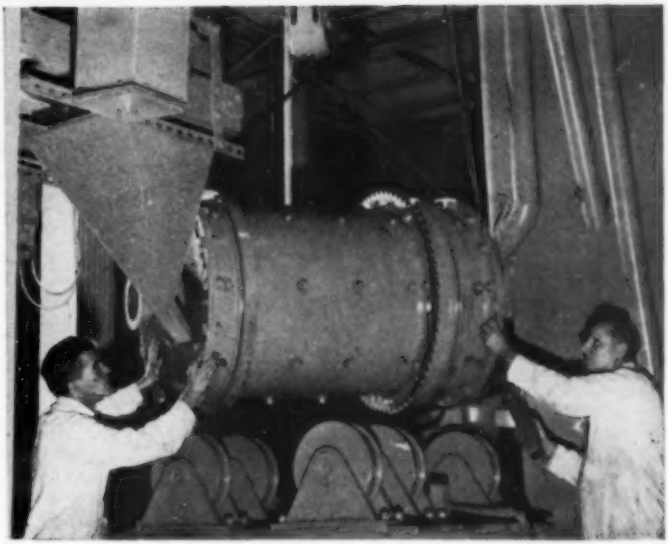
IN BUILDING Harlan County Dam, Kentucky, huge quantities of fine aggregate were needed, which had to meet sieve designations as specified in ASTM standards.

Several bids were submitted which proved too high, chiefly because of high haulage costs. To reduce costs, it was decided to try manufacturing the aggregate from material adjacent to the site.

This problem was brought to the Allis-Chalmers Basic Industries Research Laboratory for investigation. Natural fine aggregate samples, minus ¾-in. to 0.4% passing 200 mesh, were sent in for grinding and screening tests.

Result: A low cost processing circuit was worked out, resulting in a blended product of natural sand and manufactured sand in the fine aggregate size range which met ASTM specifications.

TO QUANTIFY the batch or pilot mill tests, screen analyses are made on these standard Tyler sieves and Ro-Tap machines.



30X48-IN. pilot plant rod mill was used to confirm the results obtained by batch testing. A rod mill, ball mill or blade mill can be used as desired in this laboratory set-up.

A-3029

THE ALLIS-CHALMERS Basic Industries Research Laboratory is primarily a service organization. It is manned by technically trained personnel and equipped with the necessary apparatus for investigating process problems that develop in the beneficiation of raw materials.

Will Mitchell, Jr. Director, Basic Industries Laboratory

Laboratory services include research on the development of new or existing industrial processes . . . research on new machinery, or improvement of old machinery . . . fundamental research into basic principles underlying modern mechanical, process or plant design.

The Laboratory's purpose is to develop new or more efficient methods . . . to determine the economics of processes prior to full scale production . . . to provide engineering information that will guide in the designing of efficient plants.

CAN YOU USE THIS SERVICE?

The services of the Laboratory are available to anyone in industry, regardless of the nature of their processes. All investigations are treated in complete confidence. Information obtained is not made public except with express permission of the sponsor.

The Laboratory is a service organization; charges are based on costs. An estimate for test work can be obtained through your nearest Allis-Chalmers district office, or by writing direct to:

ALLIS-CHALMERS, 974A SO. 70 ST.
MILWAUKEE, WIS.

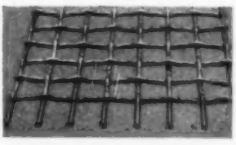
ALLIS-CHALMERS

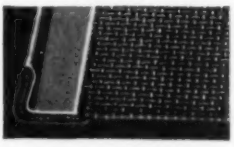
Basic Industries Research Laboratory — Dedicated to a Better Utilization of our Raw Materials

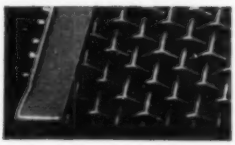
In a typical installation, Wissco SUPER-TEMPERED Precision Screens were subjected to such vibration and abrasion that the wire was worn to half its original diameter, *yet the screens stayed tight and accurate.*

When you specify Wissco SUPER-TEMPERED Precision Screens you get the combination of tough, abrasion- and fatigue-resisting steel, plus hydraulic power-looming. The rods in Wissco SUPER-TEMPERED Precision Screens are driven together so tightly that they will not work loose or shake apart under excessive vibration.

If you are a cost-minded operator, we invite you to try Wissco SUPER-TEMPERED Precision Screens. A test against your present screens will reveal how they cut maintenance costs to minimum proportions. Write to our nearest office for full details.







Wissco SUPER-TEMPERED Precision Screens are available in any length required for vibrating screen or trommel; with welded, hooked or reinforced edge to fit any type of vibrator.

SUPER-TEMPERED PRECISION SCREENS

CF&I

A PRODUCT OF WICKWIRE SPENCER STEEL DIVISION
OF **THE COLORADO FUEL & IRON CORP.**

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DENVER-DILLON Vibrating Circle VIBRATING SCREENS

IN STOCK FOR QUICK DELIVERY...

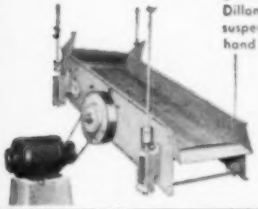
1½' x 3' Double-Deck Denver-Dillon Vibrating Screen, right-hand drive, showing how 1½' x 3' screen can be mounted on frame with casters.

1½' x 3' Single-Deck

Bare Screen		Add for ½ H.P. motor, motor mounting and drive.
$338	Weight 225 lbs.	Price $89 Weight 108 lbs.

1½' x 3' Double-Deck

Bare Screen		Add for ¾ H.P. motor, motor mounting and drive.
$371	Weight 350 lbs.	Price $101 Weight 122 lbs.



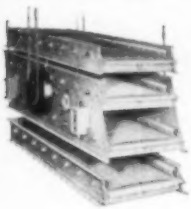
2' x 4' Single-Deck Denver-Dillon Vibrating Screen, suspension mounting, right hand drive.

2' x 4' Single-Deck

Bare Screen		Add for ¾ H.P. motor, motor mounting and drive.
$432	Weight 350 lbs.	Price $101 Weight 122 lbs.

2' x 4' Double-Deck

Bare Screen		Add for 1 H.P. motor, motor mounting and drive.
$473	Weight 600 lbs.	Price $117 Weight 135 lbs.



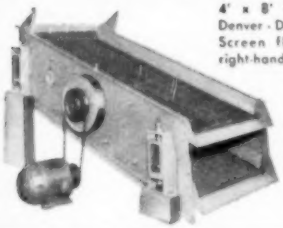
3' x 6' Double-Deck Denver-Dillon Vibrating Screen showing how additional deck may be added. Undersize hopper and dust or top cover may be added.

3' x 6' Single-Deck

Bare Screen		Add for 2 H.P. motor, motor mounting and drive.
$869	Weight 725 lbs.	Price $150 Weight 170 lbs.

3' x 6' Double-Deck

Bare Screen		Add for 3 H.P. motor, motor mounting and drive.
$954	Weight 1200 lbs.	Price $168 Weight 180 lbs.



4' x 8' Double-Deck Denver-Dillon Vibrating Screen floor mounted, right-hand drive.

4' x 8' Single-Deck

Bare Screen		Add for 3 H.P. motor, motor mounting and drive.
$1402	Weight 1275 lbs.	Price $168 Weight 180 lbs.

4' x 8' Double-Deck

Bare Screen		Add for 5 H.P. motor, motor mounting and drive.
$1545	Weight 2100 lbs.	Price $205 Weight 245 lbs.

● 2-bearing operation of Denver-Dillon Vibrating Screen reduces power as much as one half. Positive action reduces blinding, makes accurate size separations. Low weight, low h.p. and distinctive patented features give efficient results.

All motors are totally enclosed, ball bearing. Mounting is suspended spring type motor plate for suspended drive. (Hinged motor base for floor mounting drive also available.)

PRICES

Prices are firm through February, March and April 1950. Above prices are f.o.b. Denver or Colorado Springs, Colorado, packed for domestic shipment only. Prices for export are slightly higher and include rugged packing.

ORDER TODAY

When ordering please advise electrical characteristics. Right hand machines as shown will be furnished unless left hand is desired. Screens will be shipped via lowest transportation cost unless otherwise specified.

Phone us at CHarry 4466, Denver or Wire DECO Denver

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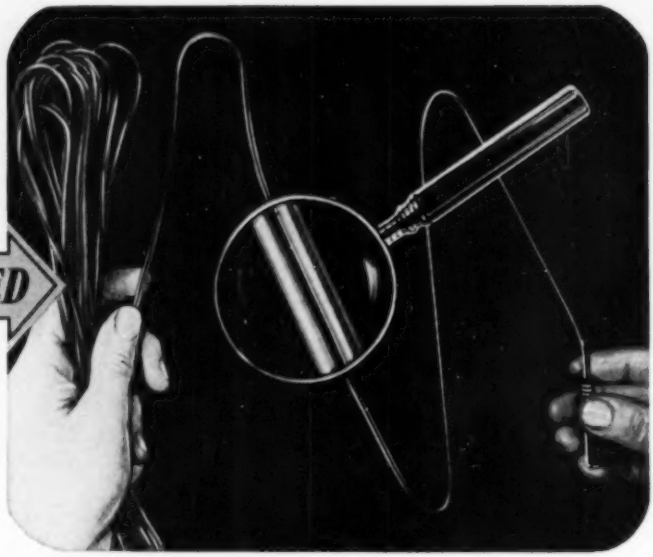
Blasters Agree...

The New ATLAS PLASTIC-INSULATED Blasting Cap Wiring



Meets The Most Exacting Demands

Here's why:

1. ***It's really tough—and truly waterproof!*** Thick plastic covering, made to withstand rough handling in jagged bore holes. Fully waterproof. Extremely high insulating value.
2. ***Less kinking and snarling!*** With minimum care, it folds or reels out without tangles or kinks—saves time and tempers in hooking up.
3. ***Flexible at 20° below zero!*** Made to withstand Arctic or Tropic weather.
4. ***Easy on eyes and hands!*** No eye-strain to see the brilliant orange or yellow wire, even in dull light. No rough edges when duplex wire is separated into single strands.
5. ***Stands up to rigid tests!*** Compare it with other wire for these outstanding properties; and also for high tensile and compression strength; resistance to deterioration from weather, rodents, vermin.

You can save time and trouble—that means *money*—on blasting jobs with the new Atlas plastic-covered leg wires and connecting wiring. This latest Atlas contribution to explosives progress comes up to the highest expectations—and more—of men who use electric blasting caps under the roughest field conditions. Now available in duplex on all Atlas Manasite electric blasting caps with wires 30 feet long or more. Two single plastic-covered wires on shorter lengths. Made by the developers of ROCKMASTER, the original split-second delay blasting system.

ROCKMASTER, MANASITE: Reg. U. S. Pat. Off.

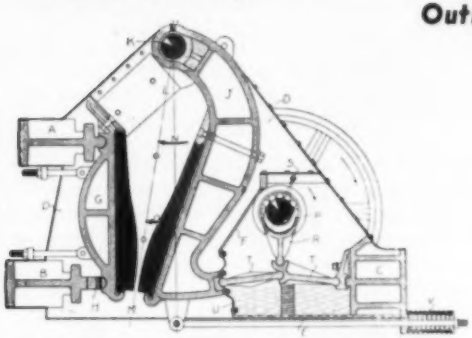
ATLAS EXPOSITIVES *"Everything for Blasting"*

CHEMICALS ATLAS EXPLOSIVES

ATLAS POWDER COMPANY, Wilmington 99, Del. • *Offices in principal cities* • *Cable Address—Atpowco*

JAW PLATES LAST LONGER

Here's Why —



TODAY'S KUE-KEN* JAW CRUSHER

THE HINGE PIN is on the center line of the crushing zone. As the jaw swings back and forth, it describes an arc which is normal to both crushing faces. There is practically no upward movement, so rocks are crushed without rubbing. Jaw plates last 5 to 10 times longer than in ordinary crushers.

MORE CAPACITY

Kue-Ken mechanism permits 50 to 60% higher crushing speed. More crushing strokes per minute means more crushed rock.

LESS POWER

Power is used for crushing rock instead of wearing out jaw plates as in ordinary crushers. Ordinary crushers waste 40 to 50% of the power to overcome friction and unbalanced weight.

*Pronounced Que-Ken. U. S. and Foreign Patents Pending.

Outmoded Crushing Principles Still in Use

Blake or double toggle crusher, designed 1858. The swing jaw forces rock upwards, rubbing against jaws, causing rapid wear and low capacity. Power is wasted.

Overhead eccentric or single toggle crusher designed 1879. The moving jaw forces rock both up and down, causing rubbing and excessive wear. Power is wasted. Bearing pressures are very high.

LUBRICATE ONLY TWICE YEARLY

All mechanism runs in sealed, filtered oil bath. Exclusive Kue-Ken oil seal keeps oil in — dirt out. Self priming oil pump constantly floods all mechanism. Automatic pressure switch stops motor if oil pressure drops below standard setting or in case of overload. Compare this system with ordinary "oil can and grease cup" equipment requiring daily or hourly service and operating under a shower of gritty — grinding rock dust.

Kue-Ken crushers afford tremendous maintenance savings over ordinary crushers.

Kue-Ken crushers are furnished with straight or curved jaw plates, depending on crushing requirements. 18 sizes from 12″ x 7″ to 42″ x 27″.

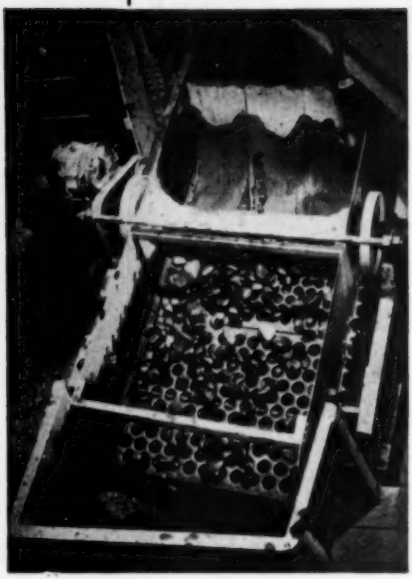
Send for Bulletin 605.

Exclusive manufacturer for Eastern U. S., Canada and Puerto Rico; Pennsylvania Crusher Co., Broad and Arch Streets, Philadelphia, Pa.

STRAUB MFG. CO.

520 CHESTNUT STREET OAKLAND 20, CALIFORNIA

Kue-Ken Balanced Crushers	Rib Cone Ball Mills	Overflow Classifiers
Kue-Ken Simplex Crushers	Concentrating Tables	Feeders
Kue-Ken Gyratory Crushers	Overhead Eccentric Crushers	Screenwheel Classifiers



The mesh stays uniform however rough the usage

An outstanding advantage of Hendrick Perforated Plate for vibrating and shaking screens is that it maintains uniformity of mesh throughout an unusually long service life.

Other advantages are its full clearance that obviates clogging, and the ease with which decks can be changed, minimizing labor costs. For screening highly abrasive material Hendrick Perforated Plate is heat-treated to increase its toughness.

With any desired shape and size of perforations, Hendrick Perforated Plate can be supplied—either flat or corrugated—in any required gauge in tank, high carbon, high tensile, and abrasive-resisting steels, and in other commercially rolled metals. Write for copy of new Perforated Plate Catalogue.

SEE OUR CATALOG IN SWEET'S

HENDRICK

Manufacturing Company

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Perforated Metal Screens
Architectural Grilles
Mitco Open Steel Flooring,
"Shur-Site" Treads and
Armorgrids

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DO COSTS MATTER?

50-TON ALL-STEEL HOPPER CARS

Capacity—110,000#
Cubic Feet—1710
Wine Door Locks
Cast Steel Side Frames
Cast Steel Truck Bolsters
Pressed Steel Hopper Doors

Cars are completely repaired and will meet A. A. R. requirements.

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Cincinnati 1, Ohio

PREFORMED

gives you

LONGER LIFE

EASIER HANDLING

MORE ECONOMY

-Preformed-
"HERCULES"
RED STRAND
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SAVING MAINTENANCE TIME . . . BUILDING GREATER PROFITS

★ Full payload every trip . . . FOR MORE PROFIT.

★ Rugged all-welded construction . . . LOWER MAINTENANCE COST.

★ 14% Manganese Steel Chains and Fittings . . . STANDARD ON ALL TYPES AND SIZES.

★ A Type for Every Job . . . light, medium, or heavy-duty. WITH OR WITHOUT PERFORATIONS. ⅜ to 40 Cubic Yards.

More and more dirt-moving men notice the number of Hendrix Dragline Buckets being used on other jobs. They ask questions and learn that Hendrix Buckets move more dirt . . . easily . . . quickly . . . and without breakdowns . . . resulting in more profits. That is why more and more bucket users try Hendrix Buckets . . . then turn around and ask that *all* their draglines be equipped with money-making Hendrix Dragline Buckets!

For descriptive literature ask your dealer or write

HENDRIX Lightweight **DRAGLINE BUCKETS**

HENDRIX MANUFACTURING CO., INC.

MANSFIELD — LOUISIANA

Industry's #1 Conveyor

Write for Bulletin

ATLAS Model 17—24" Portable Belt Conveyor, 30 ft. long c-c. Has eccentric motion shaker screen.

Atlas . . . for SUPER-EFFICIENCY in handling concrete, sand, gravel

Adaptability for many different jobs, ease and economy of operation make ATLAS Conveyors the "first choice" of highway commissions and contractors for road building and general construction work.

ATLAS Model 17 Conveyor is specially suited for stockpiling materials from portable aggregate plants, as wheels are far back —they can't get "buried" in material.

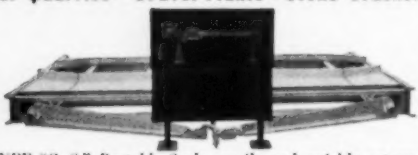
We also manufacture Bucket Elevators, Portable Flight Conveyors, Stationary Belt Conveyors, Portable Elevators, and similar equipment.

ATLAS CONVEYOR CO., Clintonville, Wis.

WINSLOW

TRUCK and TRACTOR TRAILER SCALES

For Quarries—Gravel Plants—Stone Crushers



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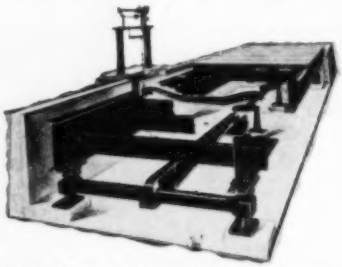

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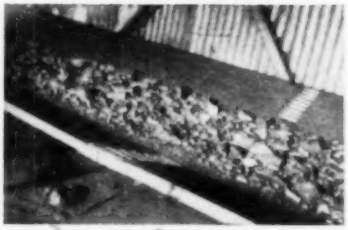

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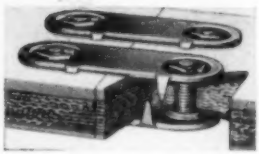

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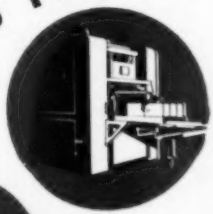
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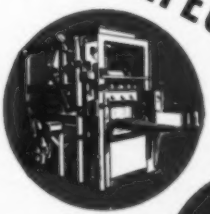
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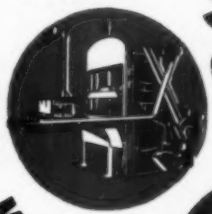
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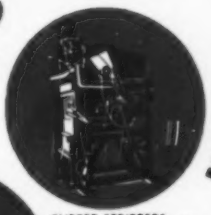
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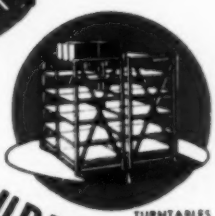
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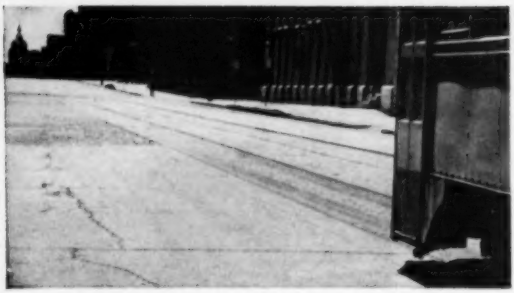
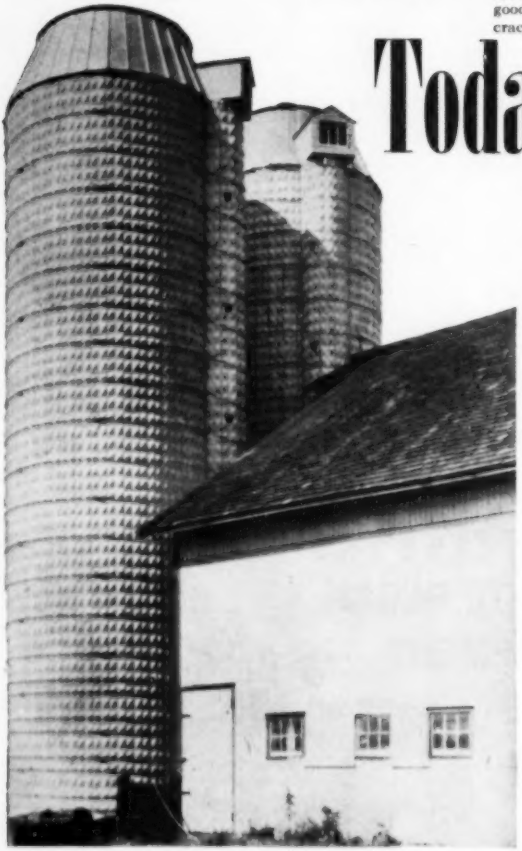


Ten Years Ago...

A Decade of ATLAS DURAPLASTIC AIR-ENTRAINING PORTLAND CEMENT

concrete made with Duraplastic cement got its first test. In August 1939, this test paving was laid in Second Avenue North, Minneapolis. The badly scaled section of roadway in the background was made with regular portland cement. The foreground section, *laid at the same time*, was made with Atlas Duraplastic —the first commercial use of the air-entraining portland cement originated and developed by Universal Atlas.

Both sections, subjected to the severity of ten Minneapolis winters and to heavy applications of de-icing salts, are shown just as they appeared in July, 1949—convincing proof of the durability and lasting good appearance of Duraplastic concrete. Longitudinal structural crack shows some ravelling. Note perfect transverse joint.



Concrete silo on New Jersey farm. Built with Duraplastic Concrete Products. Contractor: Medford Concrete Co., Medford, N. J.

Today . . . More and More . . . Superior Concrete Products of DURAPLASTIC*

More and more products makers, noting the mounting success of Duraplastic Air-Entraining Portland Cement in paving and structural jobs during the past decade, have come to rely on Atlas Duraplastic for superior concrete products at no extra cost. They use it for concrete block, brick, pipe, drain tile, silo staves and other products.

Today, for machine-made products, like block or the products shown on this silo, manufacturers find they can use a damper mix—one that's more cohesive, holds together better and feeds easily through machines. Finished units exhibit greater resistance to passage and absorption of water. Appearance and face-texture are generally improved. Edges and corners are clean-cut, truer.

Atlas Duraplastic complies with ASTM and Federal specifications, calls for no unusual changes in procedure and costs no more than regular cement.

Send for NEW FREE BOOKLET, "A Decade of Atlas Duraplastic Air-Entraining Portland Cement." Write to Universal Atlas Cement Company (United States Steel Corporation Subsidiary), Chrysler Building, New York 17, N. Y.

OFFICES: Albany, Birmingham, Boston, Chicago, Dayton, Kansas City, Minneapolis, New York, Phila., Pittsburgh, St. Louis, Waco.

*"Duraplastic" is the registered trade mark of the air-entraining portland cement manufactured by Universal Atlas Cement Company.

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AIR-ENTRAINING PORTLAND CEMENT

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NEWS OF CONCRETE MANUFACTURERS

Stevens Institute Offers First Full-Term Course In Prestressed Concrete

Stevens Institute of Technology at Hoboken, N. J., is offering during its Spring term a course in prestressed concrete. It is said that this is the first time such a full-term course has ever been given in the United States.

The civil engineering laboratory on the campus will be utilized as headquarters, and the course will provide instruction and research in this increasingly popular subject. In charge of the course will be John E. Brett, an instructor in the civil engineering department.

Site-Casting Cuts Job Cost One-Third for 1-Mile Outlet

"Site-Cast," a method for installing large-diameter pipe at points where existing plants cannot furnish the specified material, was recently used by the Universal Concrete Pipe Company of Columbus, O., on a storm sewer project at Midland, Mich. Briefly, the process consists of moving the plant to the site of the project, thus saving transportation costs.

Working in collaboration with Federal Steel Fabricators, Universal constructed a direct drainage outlet about 1 mile long through the center of the city. Cost of the project by means of this method (open cut) was estimated to have been cut approximately one-third over tunnel work or monolithic construction.

Molds, forms, cores and pipe-making equipment were brought to the site and a stationary mixer was set up so arranged that it discharged into trucks backed in below. From these trucks the concrete was poured over heavy reinforcement wire in the forms. Internal vibrators aided in making the pipe of uniform strength and density. The cured pipe was loaded by crane to a flat-bed trailer. At the job another crane lowered it into position in the trench. Pipe handling was facilitated by a lifting hole in each section and a curved interior support which distributed the stress.

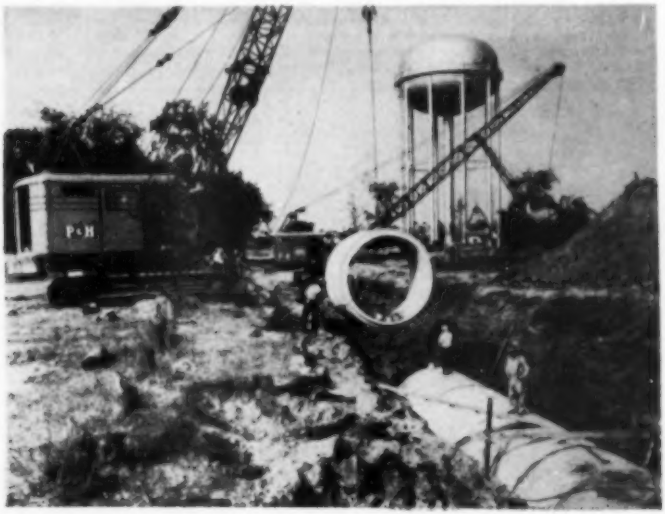
Frank Spangler New Head Of Portland Block Concern

Frank Spangler, formerly sales manager of Empire Building Materials Company, Portland, Ore., recently became president of that firm. Mr. Spangler entered the duties of his new post after acquiring the interest in the company held by H. L. Priest, former president. He will take over the general managership of Empire Building Materials, which produces Lite-Rock units. Shale for Lite-Rock is processed by the Northwest Aggregate, Inc.

In 1945 Mr. Spangler helped organize the first Empire Building Materials plant as vice-president in charge of production. Last year he took charge of sales.

On March 18, members of the Concrete Products Association of Washington met in Seattle for the organization's twenty-first annual spring meeting.

• Scene at Midland, Mich., as concrete pipe was laid by a crane in Universal Concrete Pipe Company's "Site-Cast" project.



N.C.M.A. Offers Members Valuable Library of Prints As Loan or for Purchase

As a means of assisting members of the National Concrete Masonry Association in the preparation and planning of exhibits for trade shows and similar displays, the association has established a "traveling library" of 12 giant prints, each measuring 40 by 50 inches. They are mounted on heavy superboard. Each picture shows a typical modern application of concrete masonry in an exterior or interior of some structure such as a church, a school, or a theatre.

Members may borrow or purchase any of these prints for use in their exhibits by following the instructions given in a folder which may be obtained by applying to the N.C.M.A. offices at 38 S. Dearborn Street, Chicago 3, Ill.

In order to facilitate mailing, members are requested to order the prints in groups of four and indicate second choices as well.

Worrall Bros., Inc., Issues Concrete Products Catalogue

Worrall Bros., Inc., of Louisville, Ky., has recently published one of the most comprehensive catalogues of concrete products in the Southeast. It is an 8-page pamphlet featuring concrete blocks and lightweight Celocrete masonry units which are made of portland cement and an expanded slag produced by the Celotex Corporation of Chicago.

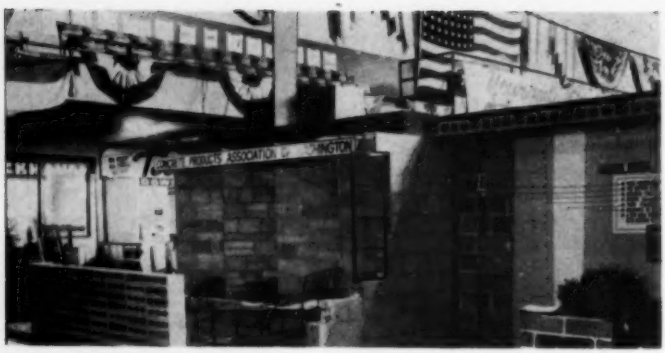
The pamphlet points out the advantages of building home, farm, and commercial buildings of concrete or Celocrete blocks, picturing examples of various types of these buildings. Further, these modular blocks are fully illustrated, in 86 different sizes and shapes, with dimensions and cores. Each block is given a stock number to facilitate ordering. Their stock numbering system is comparatively new, each composite number having special significance as to size, shape, etc.

The pamphlet concludes with pictures of one of the Besser Vibrapac block-producing machines at Worrall Bros., an exterior view of their plant and storage yard, and a brief summary of the history and products of Worrall Bros.

Intermountain Block Assn. Meets at Twin Falls, Idaho

Election of officers, discussions on promoting the block industry, and a tour of the Idaho Masonry Products Company's plant at Twin Falls, Idaho, were the highlights of the Intermountain Block Manufacturers Association meeting held recently in that city.

Elected to head the organization for the coming year were Charles Warde, president, and V. E. Camozzi, secretary.



Concrete Products Assn. Of Washington Participates In 1950 Seattle Home Show

The Concrete Products Association of Washington has taken effective action in bringing to the people of the state the numerous advantages of concrete masonry for home building by participating in the nine-day Seattle Home Show held from January 28 to February 5 at the New Armory.

Approximately 100,000 people attended this sixth annual show. They saw concrete masonry used effectively in the six-room home which was designed and built especially for this event. Those attending also had the opportunity to see how beauty, durability, fire safety, security and economy may be combined in a home by visiting the booth of the Concrete Products Association of Washington. Here these points were displayed with exhibits of homes designed by some of Seattle's leading architects.

• The booth of the Concrete Products Assn. of Washington was of great interest to prospective home builders, who could see there the construction steps for obtaining low-cost homes.

Frederick W. Reinhold, president of Anchor Concrete Products, Inc., Buffalo, N. Y., has been named general chairman of the 1950 Cancer Crusade of the Erie County Chapter, American Cancer Society. Mr. Reinhold is a past president of the National Concrete Masonry Association and is a member of the American Concrete Institute.

Concrete Products Men Of South Dakota Hold Fourth Annual Meeting

Sioux Falls, S. D., was the meeting place of the fourth annual convention of the Concrete Products Manufacturers Association of South Dakota on February 16 and 17.

All sessions were held at the Carpenter Hotel and on the second day those in attendance were taken on a trip including concrete block and ready-mix plants and home sites where concrete was being employed in the construction.

Among the speakers who addressed the association were the following: W. P. Markert, director of promotion for the National Concrete Masonry Association; Sheldon Reese of the Acme Company; Neil Bergstresser, South Dakota State College, Brookings; and John Griffin.

• Cement dust, settling on sparkplugs and solidifying into a solid crust that holds moisture and shorts out sparkplugs, is an irritating problem to many concrete producers. The Whittemore Company, Roslingdale, Mass., reports solution of the hard-starting problem through use of diesel engines. Cummins diesels used by Whittemore also provide fuel-saving advantages, for the firm's four Cummins-powered Mack trucks average 5.5 miles per gallon, as compared to 1.8 to 3 miles per gallon with previous gasoline rigs.

• R. E. Hagstrom and (left) L. I. Belden, with Lectro Lift which he developed.

St. Paul C. M. Producers Not Earthbound by Business

One of the most versatile of the producers who attended the convention of the National Concrete Masonry Association in Chicago in February was L. I. Belden who appears in the accompanying photograph with the truckmounted Lectro-Lift which he has developed for unloading cubed units.

In partnership with Ralph E. Hagstrom (left), Mr. Belden also operates the Central Building Supply Company at St. Paul, Minnesota. Both men are captains with Northwest Airlines and both fly regular 85-hour-per-month schedules. Mr. Belden's route is between Minneapolis and New York and Mr. Hagstrom's between Minneapolis and Chicago.

Admixtures, Pavements, Prestressing In Spotlight at A.C.I. Convention

Frank H. Jackson, Bureau of Public Roads, new A.C.I. president

By WILLIAM M. AVERY

MEMBERS of the American Concrete Institute gathered at the Edgewater Beach Hotel in Chicago the week of February 20 to participate in an outstanding program which included sessions on inspection, A.C.I. building code studies, reinforced concrete design problems, structural design of concrete, pavements, admixtures, a panel discussion of questions on concrete problems, and the annual open session on concrete and cement research. The three-day program was presented as a part of the 46th annual convention of the organization.

New Officers Frank H. Jackson, principal engineer of tests, Bureau of Public Roads, Washington, D. C., was elected president of the institute, succeeding Herbert J. Gilkey of Iowa State College, Ames, Ia. Other new officers announced at a luncheon meeting during the convention were A. T. Goldbeck, engineering director of the National Crushed Stone Association, elected to a two-year term as vice-president, and A. E. Cummings, I. L. Tyler, Charles S. Whitney, and C. E. Wuerpel, all elected to three-year terms as directors.

Mr. Jackson has been a member of the institute since 1924, and a vice-president since 1948. He has been active on technical and administrative committees, and was author or co-author of seven papers published in the *Journal of the American Concrete Institute*.

Mr. Goldbeck has been an active A.C.I. member since 1922, serving ably on committees on research, pavements, design of mixes, and aggregates. He has been a director of the institute since 1948.

A.C.I. Awards At a general luncheon on the second day of the convention Mr. Gilkey made formal presentation of the various institute awards for outstanding contributions to concrete technology. To Frank E. Richart, research professor of engineering materials at the University of Illinois, went the first Alfred E. Lindau Award "for his year of labor toward the improvement of reinforced concrete design practice." C. P. Siess and N. M. Newmark, research assistant professor and research professor, respectively, of civil engineering at the University of Illinois, received the Wason Medal for the most meritorious paper of the year, *Rational Analysis and Design of Two-Way Concrete Slabs*.

The Wason Medal for noteworthy research went to T. M. Kelly, Corps of Engineers, Portland, Ore., L. Schuman, National Bureau of Standards, Washington, and F. B. Hornibrook, formerly with Master Builders Co., Cleveland. Their research work was reported in *A Study of Alkali-Aggregate Reactivity by Means of Mortar Expansions*, which was published in the A.C.I. *Journal* of September, 1948. From this study it was determined that expansion can be eliminated by the use of a sufficient quantity of diatomaceous earth as a cement replacement.

S. O. Asplund of Stockholm, Sweden, received the A.C.I. Construction Practice Award plaque for his paper *Strengthening Bridge Slabs with Grouted Reinforcement*. Mr. Asplund's paper was published in the A.C.I. *Journal* of January, 1949.

A. T. Goldbeck, engineering director of N.C.S.A., vice-president of A.C.I.

Use of Admixtures In devoting an entire session of the annual convention to discussions of admixtures and their uses, the institute gave full recognition to the growing importance of such materials. The discussions dealt with the advantages and limitations of admixtures in precast concrete products and in monolithic concrete to increase resistance to freezing and thawing, to correct grading deficiencies, to counteract alkali-aggregate reaction, and as integral waterproofing.

F. H. Jackson of the Bureau of Public Roads, Washington, discussed the use of admixtures to increase resistance to frezing and thawing. Although water-reducing admixtures, Mr. Jackson said, were known and used to a limited extent long before air entraining entered the picture, up until about ten years ago the use of admixtures was not considered good practice. Most engineers believed that strict adherence to fundamentals was the best way to produce durable concrete.

Air-entrained concrete, Mr. Jackson said, is definitely more plastic and less subject to bleeding than concrete without air. There are several theories to explain the increased durability of such concrete. The one that seems most plausible, according to the speaker, is that the

air bubbles in the concrete may act as so many small cushions to absorb the forces created by freezing and thawing.

For severe freezing conditions, Mr. Jackson said, and where heavy applications of salt or other chemicals are to be used, the optimum desirable air content is 3 to 6 percent by volume of the concrete. He added that the resulting reduction in the strength of the concrete (about 15 percent in compression, and 10 percent in flexure) is more than compensated for by increased durability and uniformity.

There are now, according to Mr. Jackson, 30 or more admixtures on the market which are claimed to entrain air. He cautioned users to satisfy themselves by means of tests that a particular material does actually entrain air, and that other properties of the concrete are not adversely affected.

Although he agreed that there are certain advantages, mostly in respect to convenience, in the use of air-entraining cements, Mr. Jackson stated that better control of air content can be achieved with admixtures by using the trial method, and making actual determinations with a meter of the amount of air entrained. With either method, he added, it is of the utmost importance to see by actual determination that the correct amount of air is entrained.

Under frequent direct application of salt, the speaker pointed out, even air-entrained concrete may suffer damage. This may, he said, be due to the tendency to hold to the lower, rather than to the upper, limits of air content.

Concrete Products According to Bruce E. Foster, National Bureau of Standards, Washington, admixtures have been used only to a limited extent in the manufacture of concrete, but certain definite advantages have been reported to result from such use. He referred to the various types of admixtures employed in products plants, mentioning accelerators used in cold weather operations, air-entraining agents, aluminum powder (to form gas), workability agents for better compaction and flow around reinforcing steel, and water-repelling agents.

According to Mr. Foster air-entrained concrete has a number of advantages when used in concrete products. It has increased workability; compacts better, with resulting higher density; improves the surface texture of the finished products; and there is less absorption and less breakage of green units. Since entrained air imparts a rubbery consistency to the concrete, it is also possible to use more water than with ordinary concrete and still not increase the slump. Air entraining is of considerable help in operations involving lightweight aggregate mixtures, which are usually quite harsh.

The simplest way to gain these impressive advantages, Mr. Foster said, is by using air-entraining cement. He added, however, that there are definite advantages in the practice of entraining air with admixtures, particularly in view of the fact that optimum air content varies in different applications.

Mr. Foster also mentioned the use of finely divided materials, such as fly ash, to increase the workability of concrete. Experience, he said, seems to indicate that replacement of about 20 percent of the portland cement with fly ash gives quite satisfactory results. Available data regarding the effect of organic plasticizers, Mr. Foster said, are inconclusive and somewhat confusing.

Grading Deficiencies In discussing the use of admixtures to correct grading deficiencies, T. C. Powers of the Portland Cement Association pointed out that most of the materials used as admixtures are mineral powders as fine or finer than portland cement. For this reason, he said, it seems more convenient to regard admixtures as a means of correcting the properties of the cement paste. According to Mr. Powers the plasticity of concrete is due to the fact that the aggregate particles are separated by the cement paste, the degree of separation being a measure of the consistency of the paste. Since aggregate gradation is less critical with a thick paste than with a thin one, Mr. Powers said, mineral admixtures may properly be regarded as correctives for aggregate gradation.

In his second appearance at the session on admixtures, Mr. Foster discussed the use of such materials for integral dampproofing. Admixtures, Mr. Foster said, should not be regarded as a substitute for careful choice of materials and mixes, good workmanship, or adequate curing. At best, he said, they should be looked upon as a means of correcting some of the deficiencies which may occur due to deviation from good concreting practices.

W. T. Moran of the U. S. Bureau of Reclamation, Denver, who presided at the session on admixtures, briefly reviewed recent knowledge regarding their use to counteract alkali-aggregate reactions.

Concrete Pavements With L. W. Teller acting as session leader, an entire morning was devoted to a discussion of the problem of building concrete pavements to withstand the ever-increasing wheel loads to which modern highways are subjected. Kenneth B. Woods, professor of highway engineering at Purdue University, expressed the belief that the structural capacity of rigid pavements can be increased by means of location procedures which utilize the best in topograhic position and subgrade soil textures. When poor locations and inferior subgrades cannot be avoided, he said, the use of base courses must be evaluated against the economy of employing thicker slabs, more reinforcing, or a combination of the two.

The design and construction of joints in concrete pavements are covered in a paper presented by William Van Breeman, New Jersey State Highway Department, Trenton, and E. A. Finney, Michigan State Highway Department, Lansing. The various types of pavement joints and load transfer devices were described and the recommendation was made that the standards of workmanship be raised, that a uniformly consolidated subbase be provided under all pavements, and that load transfer units be evaluated on the basis of a known standard.

At this session A. T. Goldbeck discussed the factors that influence the dimensions of concrete pavements slabs; and typical structural pavement failures, as well as trends in reinforcement practices, were described by Bengt J. Friberg, Granite City Steel Co., Granite City, Ill.

Prestressing At the session on prestressed and precast concrete, Thor Germundsson, Portland Cement Association, Chicago, stated that prestressing opens entirely new fields beyond what is now regarded as concrete territory. The use of prestressed concrete, he said, makes it possible to build longer and lighter bridge spans, and it permits the use of smaller and lighter beams and columns in buildings. Moreover, Mr. Germundsson said, prestressed concrete can compete with plate girders and steel trusses where ordinary reinforced concrete cannot.

The following speaker, C. D. Wailes, Jr., of the C. D. Wailes Corp., Los Angeles, focused attention on the practical applications of

(Continued on page 138)

Marietta Concrete Develops Mortarless Unit Molded on Automatic Stave Machine

Labor Cost of Laying Walls Said to Be Cut Two Thirds

another ON THE SPOT picture

THE accompanying pictures show construction work in progress on a new type of mortarless concrete masonry building at a farm near Marietta, O. The units used were produced on a custom-built Besser Vibrapac stave machine operated by The Marietta Concrete Corporation. The 7⅝- by 10- by 32-in. blocks are produced two at a time in a special mold box which replaces the stave mold box with which the machine normally operates. Production of the units is at the rate of 360 per hour.

By WILLIAM M. AVERY

The blocks, which are essentially oversized hollow silo staves, have four cores, and are double tongued and grooved on all four edges. They are made of Aglite (a new lightweight concrete aggregate which is also produced by Marietta*), portland cement, and a small amount of sand. In these materials the units weigh approximately 70 lbs. each. Proportioning, mixing, handling, and curing are all done in the conventional way with conventional block plant facilities.

The structure shown in the photograph is the first to be built with the new units. It measures 21 ft. 4 in. wide by 61 ft. long, and was designed primarily for grain storage. The walls were laid by a three-man crew in approximately four hours, which may be some sort of record for 1,500 sq. ft. of wall area. To increase the stability of the mortarless walls, ⅝-in. vertical steel rods, attached to hooks in the foundation walls, are passed through alternate units and tightened with nuts at the top. This gives the stabilizing effect of pilasters inserted in the walls on 64-in. centers. A reinforced-concrete lintel beam is poured clear around the structure at the top to tie the walls together.

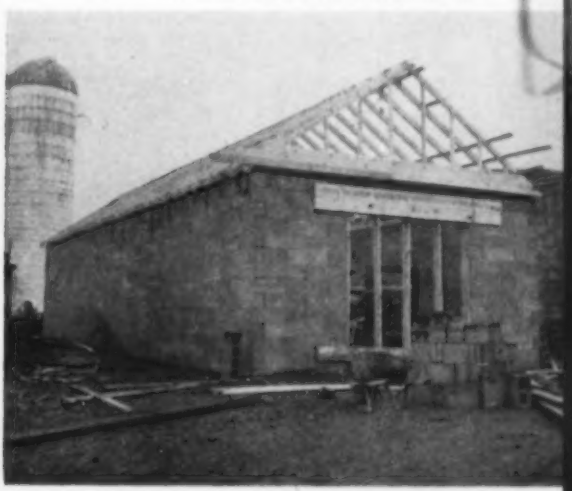
The mortarless units, which were developed by Marietta, are an outgrowth of the company's experience with Air Cell silo staves. Except for the greater thickness of the mortarless blocks, the two are identical. Although the company's engineers had grain storage buildings foremost in mind in developing the mortarless technique, the method has ob-

(*Continued on page* 140)

*See Avery, William M.: *First Aglite Plant*, PIT AND QUARRY, November, 1949, page 182.

• A closeup of the wall shows how snugly the units fit together, even though they are not ground. Double tongue-and-groove joints seal all joints between adjacent units.

• Below, left: F. L. Christy, president of the Marietta Concrete Corporation, Marietta, O., and his two sons, R. N. Christy, plant engineer, and Leonard Christy, sales manager, inspect some of the mortarless units on the job.



• Below, right: Construction view of a grain storage building in which 7⅝- by 10- by 32-in. mortarless tongue-and-groove units were used. The walls of this structure are 13 ft. high over the foundation, and are tied at the top with a reinforced-concrete beam.

42nd Annual A. C. P. A. Convention Effects Major Reorganization

By HARRY F. UTLEY

another ON THE SPOT report

A SWEEPING reorganization of the American Concrete Pipe Association was decided upon at the 42nd annual convention, held February 22-24, 1950, in San Francisco.

Since concrete pipe is divided into three general use classifications—sewer and culvert pipe, pressure water pipe, and irrigation pipe—it has been felt for some time that separate promotional groups were needed better to serve the individual needs of each. During 1949 the pressure-pipe makers banded together to set up their own organization, which has already begun to function. At the San Francisco convention the association voted similarly to establish an autonomous organization for the irrigation-pipe makers of the West and Southwest.

The parent association is to be known as Concrete Pipe Associations, Inc., with the present A.C.P.A. devoting its efforts strictly and exclusively to improving and broadening the use of sewer and culvert pipe. The other groups will be the American Concrete Pressure Pipe Association, and, tentatively at least for the irrigation-pipe producers, the Agricultural Concrete Pipe Association. Headquarters will continue to be maintained at 228 North LaSalle St. in Chicago, with Howard Peckworth, managing director, heading up the activities of each.

• Charles Gilman Hyde, Fred C. Scobey, A. M. Rawn, and R. Robinson Rowe, all of whom delivered addresses at the recent A.C.P.A. convention in San Francisco.

Convention sessions were held at the Fairmont Hotel in San Francisco. Registration totaled 188 men, and most of those coming to the city by the Golden Gate brought their wives as well.

Election of Officers E. H. Fox (Cincinnati Concrete Pipe Co., Cincinnati, O.) was elected president of the American Concrete Pipe Assn. Chosen as vice-presidents were H. P. Ford (Eugene Concrete Pipe & Products Co., Eugene, Ore.); Harry Leuliette (Universal Concrete Pipe Co., Columbus, O.); and George Black (Black-Brollier, Inc., Houston, Tex.) Secretary G. B. Denham (Foulkner Concrete Pipe Co., Hattiesburg, Miss.) and Treasurer J. D. Mollendorf (Illinois-Wisconsin Concrete Pipe Co., Chicago) were re-elected.

Three new directors were elected for three-year terms: Harry W. Heath (Lock Joint Pipe Co., East Orange, N. J.); J. A. Dunn (Hume Pipe of New England, Inc., Swampscott, Mass.); and Earl H. Eby (Elk River Concrete Products Co., Helena, Mont.).

The newly named officers of The American Concrete Pressure Pipe Association are as follows: president, Robert V. Edwards (American Pipe & Construction Company, Los Angeles); vice-president, P. R. Hirsh (Lock Joint Pipe Company, East Orange, N. J.); and secretary-treasurer, Harry S. Price, Jr. (Price Brothers Company, Dayton, O.)

• These men will head the activities of A.C.P.A. for the coming year: E. L. Johnson, H. A. Weigand, Elmer Leuliette (vice-president), Hugh P. Ford (vice-president), H. W. Heath, E. H. Eby, H. W. Easterly, G. F. Lillie, I. H. Smith, Harry S. Price Jr., G. W. Black (vice-president), H. F. Peckworth (managing director), and J. D. Mollendorf (treasurer); seated: E. H. Fox (incoming president) and J. A. Dunn (outgoing president).

President's Address J. A. Dunn, retiring president, stressed the need for more individual effort on the part of the concrete-pipe industry in product promotion and sales, without neglecting, of course, the high standards of manufacture which the industry has already achieved. In his opinion, most of the individuals in the industry have placed too much emphasis on the technical and production side, allowing promotive needs to suffer at a time when competition is beginning again to be strongly felt. He was highly optimistic for the future of the industry, however, reporting that the curves of production tonnage, association membership, and

• In this jolly group are C. Glenn Browning (Lehigh Portland Cement Co.), George Malfregeot and Elmer Leuliette (Universal Concrete Pipe Co.), and Mrs. H. X. Eschenbrenner.

• A Universal Concrete Pipe foursome: H. X. Eschenbrenner, Harold Leuliette, Mrs. C. Glenn Browning, and George Malfregeot.

association finances continue to point upward as they have during the last five years.

Managing Director Peckworth spoke in similar vein, although he predicted a general tapering off this year in the production rise. The progress of the concrete-pipe industry has far outstripped any gains mustered by competitive pipe in recent years, he declared, although he warned his listeners that the corrugated-metal interests are planning to stage a strong campaign to regain lost business. He reported that much valuable data in favor of concrete pipe has resulted from the long-term research program carried out at the St. Anthonys Falls (Minn.) Hydraulic Laboratory and was likewise optimistic over a new joint research program about to get under way at Iowa State College to study loads on underground conduits.

Discussions A "jam session" was the highlight of the afternoon meeting of February 23, at which President-elect Fox served as moderator. Nearly a score of subjects of interest were brought up for informal discussion. Cage welding proved of paramount interest, the concensus of opinion indicating that short laps are better than long; that it is seldom possible—if desirable—to attempt to develop more than 80 percent of the tensile strength of the steel at the weld, since failure of pipe in use seldom occurs at the line of the welds.

Methods of placing and holding reinforcing cages in machine-made pipe were discussed at some length. Crimping, cutting-and-banding techniques, and the use of pivot hooks were some of the methods advocated.

Curing methods came in for some discussion, most of the participants favoring the use of steam plus added moisture as most desirable to attain high, uniform strengths and impermeability. Yard curing in the presence of moisture gives test results at 28 days quite comparable to kiln curing, in the opinion of several producers who operate in areas where freezing weather seldom occurs. The concensus was that proper curing, however achieved, increases strengths 15 to 20 percent and permits using the minimum amount of cement.

A discussion of depreciation of equipment seemed to show that most producers charge off trucks in four years and production machinery in ten years. Practices vary and are largely governed by Internal Revenue Bureau interpretations in different areas.

Pipe Loads An illustrated talk by Rolf A. Normann (North Dakota Concrete Products Co., Bismarck) on pipe loads under various conditions confirmed, in general, the findings of the A.C.P.A. as revealed in *Loads on Underground Concrete Conduits*. In Mr. Normann's opinion, though, proper compaction of the soil is the key to acceptable installation and has the advantage of economy, as compared with concrete cradle supports. His experience has proved that standard pipe can be installed under 80 ft. of fill if the prisms of load are uniformly compacted to distribute the load; improperly done, even one-third of this depth of fill can cause failure.

Managing Director's Address Broad changes proposed in A.S.T.M. Committee C-13 specifications for concrete pipe were outlined in brief by Mr. Peckworth. Some of the monumental tasks facing the steering and sub-committees in undertaking the project, expected to require several years' work to complete, were described. Among other things, said Mr. Peckworth, will be the attempt for recognition of the fact that the concrete pipe industry is now using the finest concrete produced anywhere (up to 12,000 p.s.i.) in its

• Former President J. A. Dunn, Howard Schurmann (Independent Concrete Pipe Co.), and Ernest F. Bent (American Pipe and Construction Co.) are here shown receiving A.C.P.A. honors—a plaque for Mr. Dunn, illuminated citations for Messrs. Schurmann and Bent.

product. The associations will also strive to retain present standards for wall thicknesses, since any change here would involve expensive equipment expenditures on the part of the industry. Drain-tile specifications, unchanged in any important degree during a 26-year period, are also scheduled for a complete overhauling, Mr. Peckworth reported.

Big Pipe Story One of the most interesting talks of the convention was that given by Henry Weigand (United Concrete Pipe Corp., Baldwin Park, Calif.) It had to do with the production and laying of what is believed to be the largest-diameter sections of concrete pipe—15 ft.—ever to be precast. The talk was accompaned by the showing of a colored motion picture produced by Mr. Weigand.

The pipe was made in the field at Tracy, Calif., for installation in the 200-ft. pump-lift line feeding Central Valley Project water to the Delta-Fendota Canal. To cast the huge sections of pipe with 15-ft. inside diameter and 12 ft. long, with walls 15-in. thick, a monster traveling A-frame was especially built to move the completed sections from the yard to the trench. Each of the sections weighed 65 tons, and contained 28 cu. yd. of concrete. Inner cylinders of ¼-in. steel and reinforcing cages were fabricated at United's Stockton plant and trucked to Tracy. The cages were spirally-wound of 1-in. steel bars, butt-welded together to form "wires" 500 ft. long.

Concrete was batched and mixed in a Noble plant equipped with two 56-S Construction Machinery Co. mixers which discharged to either a belt conveyor for direct delivery to the forms, or into agitator trucks. The concrete was designed for a 2-in. slump and a 28-day strength of 4,000 lbs. Vinsol resin was added to entrain 3 percent of air merely to improve workability. Vibrators were used on the outside of the forms. Curing was done by steam, forms being removed after about 6 hours and huge plywood curing boxes lowered over the green sections. Steam curing at temperatures of 120 to 150 deg. F. was carried on for 36 hours. Next the sections were saturated with water and a membrane curing compound was sprayed on.

After the A-frame rig brought the sections to the trench, a 100-ton Manitowoc Speedcrane picked them up in a sling and inched them into position. Joints were caulked with lead and fibre, then grouted outside.

Sewerage and Disposal The final session of the convention on the afternoon of February 24 was devoted to papers by three distinguished speakers.

Chas. G. Hyde, sanitary and hydraulic engineer, Berkeley, Calif., traced the developments in sewerage and sewage disposal. Significant advances from the first installation of a sewerage system in 1855, in Chicago, were cited. Likewise the sewage-disposal era, which began with the erection of a sand-filtration plant at Medford, Mass., in 1887 was reviewed, and some of the salient developments since were detailed. Today, about one-third of the population of the United States is served by 6,100 up-to-date disposal plants.

Los Angeles Sewer System A. M. Rawn, Chief engineer and general manager of the Los Angeles County sanitation districts, told something of the design, construction, operation and maintenance of one of the nation's most far-flung sewer systems. Mr. Rawn first made use of concrete pipe 38 years ago in the West, and his comparison of that original pipe line to the efficient conduits of concrete pipe being installed today was inspiring, indeed, to the pipe manufacturers. He sounded a challenge to his listeners, however, when he declared that concrete pipe plants in southern California are losing thousands of dollars worth of business annually because they continue to permit their product to be used in work where it is not suited to existing conditions.

Culvert Middleman The concluding speaker, R. R. Rowe, bridge engineer with the California Department of Public Works, had as his topic, *Let's Help the Culvert Middleman*. Between the pipe maker and the consumer lies the "middleman," the contractor, and Mr. Rowe urged the pipe makers to obtain a wider use of concrete culverts by assisting the contractor in this relatively small unit of his highway-job bid. All too often contractors are inclined to bid culverts too high because they lack accurate job-cost information and this "safety factor" may increase the total bid just enough to lose the award to a competitor, and with it a good sized pipe order.

Luncheons were held at the Fairmont on both days of the sessions. Speakers Paul Speegle, program manager of radio station KNBC in San Francisco, and Almon E. Roth of the San Francisco Employers' Council.

Pressure Pipe Meeting The pressure-pipe group held a separate session during the convention and heard a technical paper on *Carrying Capacities of Concrete Pipe* by Fred C. Scobey, consulting engineer. Evaluation of the Scobey and Williams-Hagen formulae for conveying water in concrete-pipe lines were analyzed and flow coefficients discussed in some detail. The Scobey formula, the speaker reported, is used by the U. S. Bureau of Reclamation in the design of irrigation lines in the West, as well as for many western water-supply lines. The Williams-Hagen computations are used to considerable extent in the East in designing municipal trunk lines.

On the Social Side On the evening of February 22, preceding the convention proper, a large number of those who had already arrived took over one of San Francisco's famous night spots, Charlie Low's Forbidden City, for a reception, cocktail party, dinner and dance. Featured was an all-Chinese girl floor show.

The manufacturers of welded-wire fabric were hosts at their traditional cocktail party preceding the annual banquet and dance on Friday evening, February 24 in the Gold Room of the Fairmont

The concluding event of the convention was an all-day tour by bus via Golden Gate Bridge to Muir Woods and Mt. Tamalpais, where the stand of giant redwood trees was the major attraction. A stop for luncheon was made at colorful Fisherman's Wharf, where crabs, lobsters and other sea-food delicacies are cooked in huge kettles in the open.

For the ladies, exclusively, there was an all-day tour of San Francisco by bus, with luncheon at Cliff House, located high above the Pacific and overlooking Golden Gate.

Convention Briefs The 1951 convention will be held in New York City. . . . Two Canadian pipe manufacturers and one from Alaska were present. . . . Retiring President Dunn was presented with a plaque for his untiring efforts on behalf of the association during his two terms in office as head of the organization. . . . Illness prevented the attendance of two leaders in the industry who seldom miss a convention, Secretary G. B. Denham and O. H. Miller. . . . New members received at the meet-

ing included the Sunnyside Concrete Pipe Co., of Yakima, Wash., and the Hume Pipe of Australia, Ltd. . . . Illuminated citations were awarded in an unscheduled ceremony to a couple of veterans of the industry, Ernest F. Bent (American Pipe & Const. Co., Los Angeles) and Howard S. Schurmann (Independent Concrete Pipe Co., Indianapolis).

CALIFORNIA ASSOCIATION MEETING

While the California Associated Concrete Pipe Manufacturers traditionally hold their annual meeting in Fresno, birthplace of the organization, the group—largest regional organization of concrete-pipe makers, incidentally—this year also met at the Fairmont in San Francisco. Morning and afternoon sessions were held on February 22.

In the future, this organization is to be known as the Western Concrete Pipe Association. This action was taken by the board of directors and approved by the membership at the February 22 meeting.

Election of Officers Officers for 1950, all re-elected, are as follows: president H. W. Chutter (Jourdan Concrete Pipe Co., Fresno); vice-president Fred N. Linn (United Concrete Pipe Corp., Merced); secretary-treasurer, High Pollard (Pollard Bros., Ltd., Fresno). Four new directors, chosen to fill three- year terms, include the following: Mr. Pollard; L. S. Stroud (Stroud-Seabrook, Bakersfield); M. B. Fowler (Fowler & Myers, King City); and Fred Spiekerman (Ed. Spiekerman Concrete Pipe Co., Lodi).

Research, Conservation, Labor President Chutter outlined briefly some of the research work being undertaken, told of the excellent results being obtained by the association's advertisements in Western farm and construction papers, and indicated that recommendations to the California Highway Department on changes in culvert specifications had been adopted in principle.

• A Southern Block & Pipe Corporation delegation: H. C. Hofheimer II, Mrs. R. C. Goodman, Mrs. Hofheimer, and Mr. Goodman.

The question of soil conservation repayments in the 58 California districts co-operating with the U. S. Soil Conservation Service was discussed at some length and a committee was appointed to correlate facts and figures for the organization's guidance. Different formulae for computing repayment to ranchers for pipe installation apparently exist, and the study is also expected to reveal a course of action seeking to rectify some price advantage reportedly held by competitive pipe.

On the labor front, a representative of the California Employers' Association indicated that few, if any, new wage demands would be sought in the Western concrete pipe industry this year. Pressure may be brought, however, to establish paid holidays and to set up a welfare fund solely with employer contributions.

Tests at Fresno Most of the afternoon session was given over to a description of the tests being carried on jointly with the Bureau of Reclamation at Fresno. J. J. Shideler and Ernest Fortier, Bureau engineers, spoke.

The tests were undertaken following some failures due to longitudinal cracking at the joints in the Coachella Valley irrigation system. Tests involved the comparative measurement of expansion of dry pipe and the same pipe after periods of immersion in water. Studies are also being made to measure longitudinal thrust in the line and to determine the relative effectiveness and economy of rubber gaskets and elastic joint compounds to take up the thrust. Using 21-in. pipe, it has been determined that longitudinal expansion is about 6 in. per ¼ mile.

SR-4 strain gauges were used to measure expansion and thrust electrically. Early conclusions advanced were as follows:

1. The expanding wedge action of the tongue-and-groove joints caused much of the cracking; gaskets and joint fillers may offer the solution.

2. Hydrostatic bursting strengths of plain pipe were in the neighborhood of 95 lbs.; with cage-type reinforcing this was increased to 106 lbs. Steel bands fastened circumferentially around plain pipe were ineffective in increasing bursting strength.

3. Use of a larger-sized coarse aggregate (¼ to ½ in.) may improve strength.

4. Steam curing may be an improvement over yard curing, especially in attaining initially higher strengths.

• Mrs. H. S. Price Jr., Philip R. Hirsh (vice-president, American Concrete Pressure Pipe Assn.), Mrs. Marjorie Congleton, and H. W. Heath (Lock Joint Pipe Co.).

Autoclave Building Products Assn. Holds 44th Annual Convention

another ON THE SPOT report

THE 44th annual convention of the Autoclave Building Products Association (formerly the Sand Lime Brick Association) got under way on Wednesday morning, March 2, 1950. The convention was held at the Hotel Statler in Washington, D.C., on March 2, 3, and 4. Members of the association were able to hear first-hand of new findings and developments from guest speakers and from members of the various agencies of the United States Government.

The first morning was devoted to registration; this period gave members and guests a chance to meet each other and to participate in independent group discussions on various subjects and problems.

In the afternoon of March 2, J. W. Van Brunt, president of the association, called the meeting to order and introduced John K. Selden of the Research Foundation of the University of Toledo. Mr. Selden turned the first period of discussion over to Dr. George L. Kalousek, formerly associated with the U.S. Bureau of Standards and later with the Research Foundation of the University of Toledo. He is now with the Owens Illinois Glass Company. Dr. Kalousek's subject was basic research, and he discussed the need for research, along with the developments of science and the methods of application using the tools of research. Dr. Kalousek's presentation was very informative, and went into a good bit of technical detail in order to point out the value of research on raw materials and their properties. Slides were shown during his discussion. Thermal analysis was suggested as a tool for a new approach to the problem. In the course of his talk Dr. Kalousek discussed the setting of cements, and the autoclave of concrete block, as compared with normal steam curing; also autoclaving of sand and lime, and sand and cement.

Mr. Selden discussed applied research, including shrinking and cracking, in his talk, and reviewed some of his experiences with high-pressure steam-cured concrete slabs. In the course of his discussion Mr. Selden pointed out that research lays the basis for industry's expansion. This was followed by a discussion in which the members and guests participated. During this

• Carl Miller, re-elected secretary-treasurer

period the need for complete data on moisture content and shrinkage or volumetric change was brought up. Also mentioned was the need for prescribing of standardized curing time limits and conditions.

Mr. Selden then reviewed tentative plans for tests on volumetric change and moisture in concrete masonry units.

The morning session of March 3 was scheduled to begin with a presentation by Dr. F. O. Anderegg, director, Building Materials Research, John B. Pierce Foundation of Raritan, N. J. However, Dr. Anderegg was unable to be present because of a death in his immediate family.

Mr. Van Brunt introduced Max Barth of the Corps of Engineers, who gave an informal and off-the-record discussion of problems in the field of concrete block and brick and sand lime products.

In the afternoon of March 3 the members of the association, at the invitation of D. E. Parsons and Dr. Lansing S. Wells, assembled at the Bureau of Standards for a tour of the departments pertinent to their various industries.

Saturday's session started with a discussion on specifications for autoclave products, led by Dr. Wells, who is with the chemical and mineral products section of the Bureau of Standards. Dr. Wells discussed thermal reaction with regard to moisture change and chemical reaction, and also volume changes due to wetting and drying. Group discussion followed on practices and procedures at the Bureau of Standards.

At the conclusion of the discussion a gift was presented to Mrs. Wells, on behalf of the association, in appreciation of her interest in and cooperation with the association.

Jack Chenery then gave a brief summary of his experiences in making brick by using a carbide residue.

At the business meeting on Saturday, March 4, officers were elected and committees appointed. J. W. Van Brunt (Grande Brick Company, Grand Rapids, Mich.) was re-elected president, and Carl Miller (Pacific Brick Company, Pacific, Mo.) was re-elected secretary-treasurer. M. W. Ferguson (Pre-Shrunk Masonry Sales Company, Roanoke, Va.) was appointed chairman of the concrete products committee, and Dale Cobb (Century Brick, Monroe, La.) was made chairman of the sand lime products committee.

A.C.I. Convention

(*From page* 132)

prestressed concrete in this country. Mr. Wailes stated that precast construction has been used for trestle, bridges, marine structures, and many types of buildings, and he described briefly some of the outstanding examples. Precasting, the speaker concluded, has proved to be sound practice both economically and structurally. During this session of the convention, precast concrete construction in Great Britain was discussed by P. G. Bowie and A. R. Collins, both of the Cement and Concrete Association, London, England. They described applications of precasting to the construction of airplane hangars, farm buildings, and housing units.

Angus N. Spice, 77, a vice-president of the Duquesne Slag Products Company, the MacKenzie Mortar Company, and the Concrete Products Company of America, Pittsburgh, Pa. died on February 10 at a hospital in that city.

Arthur St. Clair Butterworth, former vice-president of the old General Materials Company of St. Louis, Mo., makers of ready-mixed concrete, died in a Little Rock hospital on February 14. Mr. Butterworth had recently been employed as an engineer for the Arkansas State Highway Department.

Packaged Masonry Deal Boosts Gross Sales for Florida Concern

• A part of the storage yard at the Gandy Block & Supply Company's plant, Melbourne, Fla. At the right is the pneumatic block machine, which can produce up to 600 units per hour.

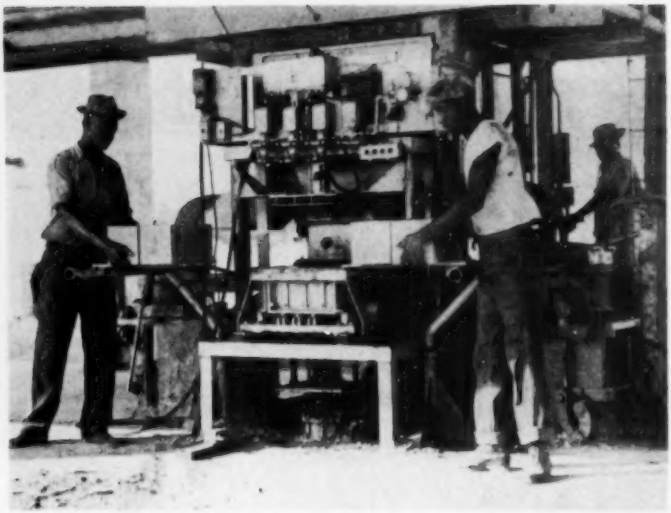
THE Gandy Block & Supply Company was formed in October, 1947, when Paul V. Gandy took over a defunct block plant located in Melbourne, Fla. At that time the physical assets of the plant consisted of one hand-operated block machine, a 12-cu. ft. mixer, and a belt conveyor. A fact that made operation even more difficult was the location of the plant—on the ground floor of a warehouse which was shared with eight other businesses.

Since Mr. Gandy was an electrical engineer and had no previous experience with blocks or other concrete masonry units, a consultant familiar with the products industry was engaged before the Gandy Block & Supply Co. started operations. At his suggestion a franchise was secured from the Industrial Plastics Company, which licensed the use of a plastic admixture that is said to make the blocks harder, smoother, and more waterproof. In July, 1949, by dint of good merchandising, combined with an enormous need for construction materials, the new company had outgrown the cramped quarters of the warehouse. During the period from October, 1947, to July, 1949, production, which had started at 600 blocks per day with a three-man crew, was increased to 1700 blocks per day with five men.

By July, 1949, the management of the company felt that the physical limitations of the warehouse were inadequate to accommodate the layout of an efficient block-producing operation and accordingly set about to select a new plant site and to build a suitable plant structure. By December, 1949, the new plant was in production, turning out nearly 2200 blocks per day with a four-man production crew. This figure could be increased to 4500 blocks daily by using two extra men as a stacking crew and by securing extra pallets and racks.

Although the Appley-Yellen "Hi-Speed" pneumatic block machine used at the new plant will produce up to 600 standard 8-in. units per hour, it is operated here at a 480-units-per-hour rate. A time delay relay was wired in parallel with the control circuit of the machine, which makes it possible to vary the time interval betwen each block-making cycle. A further timing refinement permits adjustment in the length of the block-forming cycle, which can

• The Gandy Block & Supply Company's attractive office building, built of the firm's own block and fronting the highway.



• The 600-units-per-hour pneumatic block machine, set to operate at the rate of 480 units per hour. The unit is furnished with special timing devices which permit changes in between-cycle intervals and variation in the length of block-forming cycle.

be set for particular aggregates, consistency of mix, and other factors. Since for all practical purposes the production rate of the machine depends upon the time interval between production cycles, the machine can be speeded up or slowed down to accommodate the ability and experience of the men working the machine. The more experienced the operators, the shorter the time cycle and the higher the production. In addition, this particular machine and control set-up has the distinct advantage of making operation by two men feasible in those instances where it is desired to keep production low during slack periods. Of course, a change in the production rate of the machine in no way affects the uniform quality of the blocks, since the actual production cycle remains relatively constant for any given aggregate and mix design.

Other equipment in the new plant includes an Appley "Little Giant" machine for the production of bull-nose blocks, an Appley 16-cu. ft. mixer with skip hoist and water gauge, a Clark 4000-lb. fork lift truck which is used for transferring rocks, stacking cubes, and loading out trucks, a 10-cu. ft. Bell prime mover, and a hand-operated electrically-vibrated machine for partition blocks. The Appley-Yellen block machine and the Appley equipment are distributed through the Mishco Corp. of Miami, Fla.

The blocks are made from a mixture of river sand from a local pit and 3/8 in. limestone which is shipped by rail from Naranja, Fla. The mixer is charged by two men operating the Bell prime mover. Two more men serve as off-bearers when the machine is on automatic operation. In addition to his supervisory duties, the plant foreman serves as the fork lift operator.

Newly-formed units from the machine are loaded on racks which are moved to one section of the shed. After standing overnight, the blocks are stripped and cubed and the racks and pallets returned to the machine area for use in that day's production.

Since the population of Melbourne is only 5000 people, plus about 3000 persons in the immediate surrounding countryside, the company soon found that the total market for blocks was inadequate to support full-scale production. To increase the gross volume of the company's sales, a masonry package deal was developed which includes all masonry and basic building materials (except lumber, and clay products, plumbing, and electrical equipment) needed in home construction. The customer is offered a substantial discount if all of the materials are purchased through this packaged deal. When a customer places an order for the construction package, the company agrees to have material on the job as needed and further promises to set up a delivery schedule to suit the builder's convenience. Arrangements were made with the suppliers of those materials which the Gandy Block & Supply Co. does not produce for house lot purchases. This avoids excessively heavy inventories.

The new plant of the Gandy Block & Supply Co. provides an eye-catching, sales-provoking display of the company's products. The plant site fronts along the scenic U. S. Highway No. 1 between Melbourne and Eau Gallie, Fla. Although there is no railroad siding nearby, the management felt that the advertising value inherent in the new location outweighed the savings connected with locating on or nearer to a siding. Because the land surrounding the plant was quite sandy, it was necessary, in order to provide adequate bearing for the fork lift truck, to stabilize the top soil with 300 cu. yds. of marl, over which another 300 cu. yd. of marl was rolled in.

The attractive office, which directly faces the highway, is of dry wall construction and is built with the company's 8-in. Plasti-Crete block, painted on the outside and coated directly with a colored plastic on the inside. In addition to the advertising value intrinsic in the design, the building serves as a practical demonstration of the Plasti-Crete method of construction which the Gandy Block & Supply Co. promotes. This method of building is based on the use of plastic materials which eliminate the need for stucco, furring, lath plastering, interior wall painting, etc.

Marietta's Mortarless Unit

(*From page* 133)

vious possibilities in many other types of structures. Experience to date indicates that the method effects a two-thirds reduction in the labor cost of laying masonry walls.

The Marietta Concrete Corporation has been manufacturing precast concrete storage systems since 1916, and is today believed to be the largest concern in that field. In addition to Aglite concrete aggregate and silo staves, the company's plant at Marietta, O., also produces standard concrete masonry units and ready-mixed concrete. The company also operates a large stave and block plant near Baltimore, Md. F. L. Christy is president of the firm, and R. C. McCall is chief engineer.

Fulton, Mo., has a new industry, the Callaway Concrete Company, which will produce ready-mixed concrete. Announcement of the erection of the plant was made by Willard Britt and Lon C. Ware Jr. Mr. Britt is manager of the plant.

Albuquerque Firm Expands Facilities With Streamlined Mix-Batch Plant

• M. Eugene Sundt, vice-president and general manager of the Albuquerque Gravel Products Co.

THE Albuquerque Gravel Products Co., Albuquerque, N. M., one of the most progressive and now also one of the largest producers of sand and gravel and ready-mixed concrete in the Rockies in the summer of 1949 added a new 180-cu. yd.-per-hour central-mixing and batching plant and a new 200-t.p.h. gravel plant. Both are the last word in design and equipment, and they supplement older operations which have capacities of 100-t.p.h. and 80-cu. yds. per hour, respectively.

This company got its start in the ready-mix business in 1945, when a temporary batching plant was installed at its gravel pit 3 miles from downtown Albuquerque, then a fast-growing city of 75,000 population. Results were so encouraging that a new plant was put in operation near the downtown section at what is now the company's main yard. This was at the time probably the largest and most modern batching plant in this section and was completely described in the February, 1946, issue of PIT AND QUARRY. It was again featured in the September, 1948, issue after this plant had been enlarged and improved and the old gravel plant had been replaced with a larger and more modern operation. These plants are supplemented now by the two new plants mentioned above which were made necessary by the continued growth of the city and the development of the surrounding area.

The new ready-mix unit is located 7 miles northeast of downtown Albuquerque, and with the old plant ½ mile southeast of downtown, it provides ready access to the most rapidly growing sections of the city and its environs. It is only 2 miles north of the Sandia Base of the Atomic Energy Commission, which is using large quantities of concrete.

The ready-mix plant was designed by the Noble Company, Oakland, Calif., which also supplied most of the equipment, including bins, elevators, conveyors, batchers, etc. It is fully automatic and has several other unique features.

The cement for this plant is loaded at the old plant into a hopper-bottom semi-trailer consisting of a 90-bbl. Eidal Manufacturing Company (Albuquerque) trailer drawn by an International KB-8 truck tractor unit. At the new r.m.c. plant the cement is dumped by means of a manually-controlled gate into a receiving hopper. A canvas boot prevents loss of cement, as the wind in this area sometimes reaches 65 m.p.h.

• Earl Jordan, superintendent of the firm's gravel plants and in charge of maintenance and upkeep of all plants; W. J. Christensen, sales manager; and L. H. Frederich, superintendent of the two concrete plants and manager of the truck fleets.

• Ward Anderson, secretary-treasurer of the firm, at his desk in the company office.

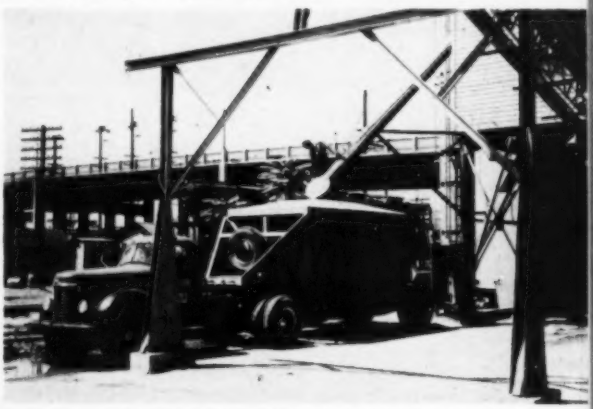
A screw conveyor takes the cement to a bucket elevator feeding to a 500-bbl. silo. A screw conveyor under the silo feeds to the weigh batcher. The cement silo has high- and low-level indicators which automatically start and stop the feed screw and elevator from the truck hopper. Lights show the operator what is going on there. A foundation is in place for a second silo if a second type of cement is ever required.

The aggregates used in this plant are hauled 6½ miles from the new gravel plant by a two-unit Eidal trailer train, each unit with a capacity of 16 cu. yds. These are dumped through clamshell gates operated by air cylinders which are electrically controlled from the dashboard of the truck tractor unit.

The aggregates are discharged from the trailers to eight ground storage bunkers with a capacity of 100 cu. yds. each. Usually three sizes of sand, three sizes of gravel and course and fine pumice are stored. Gates, pneumatically controlled from the operator's platform, discharge the aggregates on a 30-in. by 65-ft. tunnel reclaiming conveyor. An extra-wide belt is used to eliminate the necessity for splashboards. The tunnel conveyor discharges at right angles onto the 24-in. by 297-ft. inclined belt to the top of the mixing plant. This conveyor is totally enclosed by a wind guard to protect the belt and prevent dust

• A string of truck mixers drawn up at the plant, waiting to be charged. The fleet is composed of 30 units.

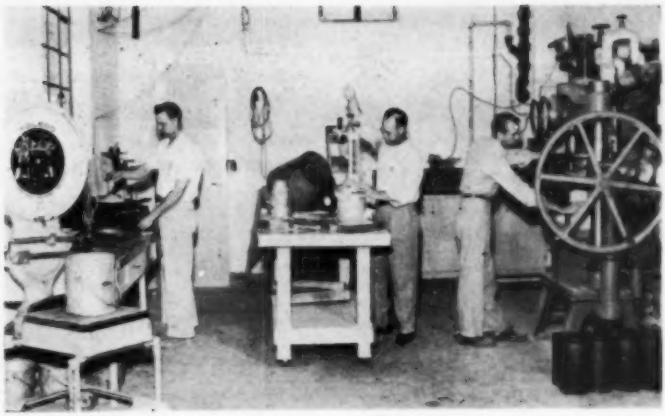
loss during high winds. There the aggregates are discharged by means of a turnhead, which is controlled from the operator's platform, into the eight 35-cu. yd. compartments of the storage bin. The control is through push buttons and limit switches, and lights indicate which compartment is being filled. The conveyors are electrically interlocked and both must be in operation before any of the ground storage gates can be opened. Another automatic control also opens only the gate of the bunker which corresponds with the bin to which the turnhead is set. A paddle arrangement at the discharge end of the plant conveyor indicates by a light whether or not there is material on the belt. When shuting off the flow of one material, the operator watches this light for an empty belt before switching to another size. The tunnel gates are operated by air cylinders with solenoid valves from switches on the plant control board. There are high- and low-level indicators on each compartment of the aggregate storage bin. Each high-level indicator shuts the corresponding gate in the tunnel and is so located that its compartment will just accommodate all the material on the belt. Two rows of lights on the control board also show whether the tunnel gates



• Here cement is loaded into a 90-bbl. hopper-bottom semi-trailer unit at the old plant for the trip to the new ready-mix plant.

• Eugene Sundt poses beside the 6-cu. yd. tilting mixer, said to be one of the two largest in the world.

• An operator at the controls which regulate the flow of aggregate cement, and water. At the right are the electronically-controlled scales.



• One corner of the enlarged laboratory, with Walter K. Wagner, chief engineer (center), and two assistants at work on tests.

are open or closed.

Only standard portland cement is being used, and Master Builders' Pozzolith is added when specified or when it is thought necessary to get the desired strength and quality. It is used in about half the concrete produced. Two Pozzolith dispensers are installed at each plant, and in winter one of these is used for calcium chloride.

The Noble 7-cu. yd. weigh batcher, with a central cement compartment, was designed to accommodate the bulkier volumes of lightweight aggregates, particularly pumice. The weights are set manually but otherwise the batching on the beam scales is fully automatic with electronic controls. The over-and-under indicator is equipped with two photo-electric cells, one to slow down the feed and the other to stop it. This system automatically weighs the cement and each desired aggregate in order. The beams for undesired aggregates are locked. Cement is weighed first on the top beam and the feed screw first slows down to a dribble and then stops at the set weight. The sliding gates under each of the eight aggregate compartments are operated by air cylinders, each equipped with a two-position solenoid valve, relays, timelocks, etc. When the aggregate feed nears the desired weight, it also slows down and then stops.

Water is weighed automatically in a separate batching tank which also has electrical controls for starting and stopping the flow.

The controls for the entire operation are located at the operator's platform, and this includes the controls for the discharge from the batchers. A lever controls the discharge from both the cement-aggregates and the water batchers, either to the 6-cu. yd. T. L. Smith tilting mixer or to separate hoppers for dry-batching. These hoppers hold a load for the truck mixers without holding up the plant. The Smith mixer is said to be one of the two largest in the world and is driven by a 100-hp. motor. It is tilted to discharge by an air cylinder and can be set for any desired rate. At present it is set to discharge its load in 40 seconds. There are separate driveways for the mixer and agitator trucks, to eliminate any posibility of delay.

The company originally had 17 truck mixers in its fleet. This has now been expanded to 30 units, all of which are 4½-yd. truck mixers which double as 6-cu. yd. agitators. Chain-Belt Rex, Jaeger, and Blaw-Knox mixer bodies are used, mounted on Macks, Internationals and Fords equipped with Cook rear ends.

Water for this plant is supplied from a 450-ft. well and is stored in a 30,000-gal. ground-level tank. The water is pumped from this tank to two 1,500-gal. tanks located above the operating floor of the plant. One tank is used for cold water and the other is connected to a Cleaver-Brooks 85-hp., gas-fired automatic boiler. An automatic thermostatic control keeps the mixing water at any desired temperature by mixing from both tanks.

Except that there are three standpipes for washing out truck mixers and a grease rack at the new plant, all service and repair facilities are at the downtown plant. The new shop there is equipped to wash out four truck mixers at once over a 10- by 50-ft. pit with a metal grill cover. A drag chain conveyor in the bottom of this tank elevates the solids into a dump truck for disposal. The cement in suspension is allowed to settle out overnight before the water is drained off to a sewer. About 20 mixers can be washed out before the tank runs over.

The end stall in the new shop is the grease pit, which has modern pressure lubricating equipment. There is also a tire repair room, a parts room, three work stalls, lockers, showers, etc. Overhead monorails are used to handle motors.

The laboratory, which originally occupied one room of the office

• One of the trucks receiving a load from the big mixer, which is set to discharge its load in 40 seconds.

building, now takes up the entire basement. Walter K. Wagner, engineer, has made this one of the best-equipped plant laboratories in the industry. Equipment includes a 200,000-lb. capacity compression testing machine, a laboratory mixer, a Heck air meter, a Toledo platform scale, an enclosed Tyler sieve shaker, etc. Two full-time employees make continual tests of the aggregates from both pits and the concrete from both plants. Control is an important part of their work and they occasionally take cylinders without warning at the jobs.

For the last two years the company has also had a pumice batching plant at its main yard from which both ready-mix plants are supplied. The pumice from outside sources is dumped into a 45-cu. yd. undertrack hopper from which it is elevated into two 200-cu. yd. circular steel silos, or into a batcher bin. Dump trucks haul the pumice to the new plant, but truck mixers at the old plant are loaded direct.

Officers of the Albuquerque Gravel Products Co. are J. S. Sundt, president; M. Eugene Sundt, vice-president and general manager; and Ward Anderson, secretary-treasurer. W. J. Christensen is sales manager, and L. H. Frederich is superintendent of the two concrete plants, the truck fleets, etc. Earl Jordan is superintendent of the gravel plants and is also in charge of maintenance and upkeep of all plants.

Karl P. Billner, president of Vacuum Concrete, Inc., and Billner Vacuum Concrete, S.A., Philadelphia, Pa., announced recently that these two concerns have more than 12,000,000 sq. ft. of prefabricated concrete under contract. This figure, stated Mr. Billner, approximately tripled that of a year ago.

Dollars Talk in Jerome For Mr. Camozzi's Company

Operators of concrete products plants might well take a leaf from Victor Camozzi, manager of the Jerome Cinder Block Company, Jerome, Idaho, in planning their public relations efforts. When Mr. Camozzi recently addressed the Jerome Chamber of Commerce, he showed most convincingly how much his firm was worth to the community.

Statistics cited by Mr. Camozzi indicated that nearly a half million dollars—$500,000—"in payroll alone has been paid into the city of Jerome in the last four years through the Jerome Cinder Block Company." He added that well over $100,000 had been spent during that period in purchases from Jerome business firms. He told of the buyer who took 20,000 units and came back the next season for 26,000 more.

According to Mr. Camozzi, Jerome blocks were the first in the United States to gain the approval of the Insurance Underwriters Association after they had withstood a four-hour fire test.

Marshaling additional statistics, Mr. Camozzi stated that the firm spends $6,000 a year in advertising. The railroads, too, have gained a neat profit from the plant—$250,000 in freight to the Union Pacific in four years.

Smithwick's Plant at Portland Making Haydite

S. Carl Smithwick, president of Smithwick Concrete Products, Portland, Ore., has announced that a new processing plant for the manufacture of haydite aggregate will be placed in operation in the immediate future at Portland.

According to Mr. Smithwick, this plant will be the first of its kind in the Northwest to produce haydite.

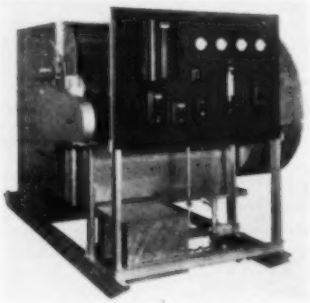
A special kiln 100 ft. high and 8 ft. in diameter and designed by Smithwick is the chief feature of the new operation. Initial production is expected to be at the rate of approximately 300 cu. yds. per day. First commitment for Smithwick haydite is to provide decking for the new Tacoma Narrows bridge.

NEW MACHINERY and SUPPLIES

● Curing Accelerator

The Campion concrete curing accelerator, primarily designed for the uniform heating of kilns used in curing concrete products was developed by the Campion Fuel Engineering Company, 9082 Alpine Avenue, Detroit 4, Mich.

A large fan forces a steady flow of saturated air around the units, resulting in faster curing. A change of damper provides immediate shifting of curing from one kiln to another. At least two kilns can be serviced by one accelerator, which is usually mounted on the roof or at the end of the kilns. By means of a control lever, the operation is shifted from the "curing" to the "drying" position. When this is done, hot dry air is passed through the kilns and moisture is picked up from the product, to be exhausted to the outside atmosphere.



The advantages claimed by the manufacturer include the following points: no heat losses; no need for a licensed boiler operator; fuel economy; fully automatic operation and consequent low maintenance cost; automatic operation by time switch, if desired.

● Metal Kiln Doors

"Uni-Temp" insulated all-metal kiln doors manufactured by Universal Door Carrier, Inc., 1117 Cornell Ave., Indianapolis 2, Ind., are available either hinged or carrier-mounted.

Universal claims that these doors will not stag or warp; that their "high-efficiency insulation" and positive vapor seal retain heat and steam; that they conserve fuel by preventing steam loss; and that they withstand weathering without being painted. Insulation is liquid-asbestos-impregnated fiber; and chemically treated felt is used for the seal.

Either an all-aluminum (lightweight) or a steel-framed (heavy-duty) type can be furnished. Weight is approximately 3 lbs. per sq. ft. for the all-aluminum type; approximately 6 lbs. per sq. ft. for the steel-framed type.

The Universal door carrier reportedly makes possible the removing or replacing of kiln doors in a few minutes by one man.

TOUGH
LONG WEARING HEAVY COWHIDE
HAND PADS

Thumb-type Hand Pads, sewed with steel thread for extra wear. Open back, combines the fit of a mitten, with coolness of a hand pad. Uniform weight.

Designed especially for handling blocks, brick, tile and similar materials. These GS Hand Pads offer maximum wear at minimum cost. Workers like them.

No. GS 40
Chrome leather plain
$1.05 pair

No. GS 114
Chrome leather with palm patch
$1.45 pair

No. GS 119
Chrome leather with steel reinforced palm patch
$1.65 pair

ORDER TODAY DIRECT — OPEN ACCOUNTS INVITED
GENERAL SCIENTIFIC EQUIPMENT COMPANY
2735 W. Huntingdon Street **Philadelphia 32, Pa.**

● Work Glove

Industry-wide popularity of natural-rubber-coated "Grab-It" work gloves has prompted the maker to add this new gauntlet style to the knit-wrist and safety-cuff types. The palm and thumb of this new glove are coated with rough-textured, natural rubber—chemically welded to strong fabric, highly resistant to abra-

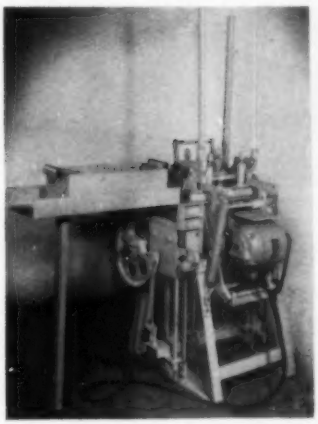
sive wear and the cutting action of sharp-edged or rough-surfaced materials.

Comfortable wear is assured by complete fabric lining — no rubber-to-skin contact. The back of the glove is canvas, with a knuckle band and an elastic insert for snug fit. A firm grip on smooth or slippery materials and good hand protection are features of Grab-It gloves. Edmont Mfg. Co., Coshocton, O.

● New Tile Machine

Announcement has been made by the Mortarless Tile Machine Co., Los Angeles, of its improved 1950 model machines for the manufacture of Mortarless patented interlocking concrete blocks.

Principal feature among several which have been newly incorporated in both the popular hand-operated and the two-



at-a-time hydraulic-powered semi-automatic machines is the addition of vibration. The vibratory action is imparted to the mold box only by a ½-hp. motor, rubber cushions separating the lower frame from the molding assembly. By combining high pressure with vibration it is now possible to make interlocking blocks in both 6-in. and 8-in. heights.

Besides producing a high-quality, uniformly strong and dense unit, the improved machines will allow greater ease of operation, reduce operator fatigue, and lower labor cost, according to J. W. Briscoe, president.

Heltzel BUILDS IT BETTER

HELTZEL

SUPERIOR *Batching Plants*

• More efficient batching plants will effect savings for you in operation and plant costs. Heltzel's specialized engineers work out your specific problems on both stationary and portable installations, ranging in capacities from 30 to 500 tons. Why not let a Heltzel representative explain exclusive features and Heltzel's better construction.

- CENTRAL MIX PLANTS
- TRANSIT MIX PLANTS
- BULK CEMENT PLANTS (Portable and Stationary)
- AGGREGATE BATCHING PLANTS (Portable and Stationary)
- CONCRETE BUCKETS

• Recirculating cement system — fills sealed cement compartment (right), and then automatically switches to loading of storage tank.
• Ohio Conveyor system — stock-piles aggregates and loads bin with one elevating conveyor and one tunnel conveyor. Diverters unload incline conveyors to stock piles at any specified points.
• 1000 bbls. capacity cement storage (others 600 to 2000 bbls. optional) assures continuous operation of plant.
HELTZEL
• Heltzel batchers, automatic or manually operated, are designed for speedy operation and uninterrupted service. Complete plants, including conveyor systems, are Heltzel designed and built for uniform quality.
• Trouble-free cement valves, exclusive with Heltzel, at all cement discharge points assure smooth flow through narrow passages.

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Please send information regarding:

Stationary Batching Plants ☐ Road and Airport Forms ☐
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HELTZEL STEEL FORM & IRON CO.
WARREN, OHIO · U. S. A.

More PROFIT WITH VENTO STEEL BASEMENT WINDOWS

3 Sizes 2 Prices

Vento Steel Basement Windows are available in three sizes and two types — CHAMPION and Thrif-T — covering two different price brackets.

CHAMPION

Heavy steel channel frame, welded throughout. Made in three sizes — available with storm sash and screen. Double-contact construction blocks wind and rain. Can be opened partially or fully *(right)*.

THRIF-T

New "economy" Vento Steel Basement Window. Made for quality residential and commercial building at minimum cost. Heavy hot rolled steel, riveted construction. Three sizes—other features same as Champion Window, above. Two open positions *(right)*.

VENTO STEEL LINTELS

For quick, neat construction with standard-size cement blocks. Provides groove for anchoring steel window. Width — 7"; length from 2' 6" to 5' 6". Excellent finished appearance.

Cash in . . . on the *big profit opportunity* offered by these VENTO products!

Write or wire today for complete details, including information on territories still available.

VENTO STEEL PRODUCTS CO., INC.

254 COLORADO AVE., BUFFALO 15, N. Y.

● Lightweight Car Shaker

After more than three years of development work, the National Conveyor and Supply Co., 351 No. Harding Ave., Chicago 24, Ill., has placed on the market a new lightweight car shaker. The device can unload a 50-ton bottom-hopper car filled with sand, crushed stone, cement, or other materials in 4 to 7 minutes.

The unit weighs 1,250 lbs. Vibration is provided through a motor-powered cam shaking mechanism.

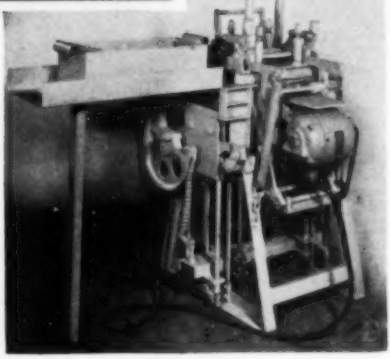
The shaker is clamped to the car by a steel bar, one end of which is hooked into the underframe of the hopper car, and the other end is fastened on the screw of the shaker.

The shaker may be furnished with either a wheel cart, a jib crane, or an overhead mono-rail for mounting the shaker to the car. Normally only one man is required to attach the unit to the car—a 4-5 minute operation.

● Casting Machine

Edward Lane, 3738 W. Lapham Street, Milwaukee, Wis., is the manufacturer of a casting machine which turns out pefabricated "logs" for the construction of outdoor fireplaces and trash burn-

Newest MORTARLESS Machines Combine High Pressure and Vibration



● The 1950 Model Mortarless* machines for producing Mortarless* interlocking concrete block are the finest, most advanced ever built.

● Among other basic improvements, vibration has been added, permitting production of both 6 in. and 8 in. high units. Only the mold itself is subject to vibratory action which, in addition to high-pressure molding—always the basic compacting action in Mortarless* machines—insures extremely strong, dense units. These improvements have been incorporated in both the time-tested hand-operated machine, and the semi-automatic hydraulic-power machine.

● Choose the machine best suited to your needs. Write for the facts TODAY. Learn how you can step out "ahead of the ordinary," and avoid relentless competition in the concrete-masonry industry . . . with protected territorial manufacturing rights.

*Patented

MORTARLESS TILE MACHINE CO.

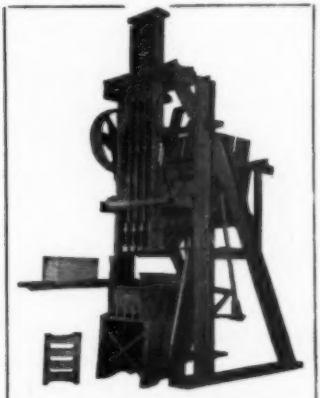
2623 Riverside Drive Los Angeles 31, California

ers constructed without the use of mortar.

Fifty-two units of 13 different sizes are required for one fireplace. Only three are reinforced, the remaining units being made of lightweight aggregate. Cast in a manner so that they "nest" upon one another, the units fit closely in a mortise-and-tenon pattern. (See illustration.)

The electrically-operated machine, em-

ploying pressure and vibration, is said to be capable of turning out a complete set of units for one fireplace in two hours.



An All-Purpose Machine

The Junior Stripper will turn out more blocks per man than any other hand-operated machine on the market . . . 300 per hour being easily maintained! Nor has quality of output been sacrificed for the sake of speed. Units are uniformly dense, true to shape, of uniform texture.

Stearns Clipper Stripper Machines; Stearns Joltcrete Machines; Stearns Mixers; Cast iron and press steel pallets. Straublox oscillating attachments, etc. Repair parts for: Anchor, Stearns, Blystone Mixers and many others.

ANCHOR CONCRETE MACHINERY CO.
G. M. Frisl, Manager — Columbus, Ohio

● Truck-Mixer Loading Plant

Shown here is a recent installation of the Blaw-Knox one-stop truck mixer loading plant. The bin has one cement and three aggregate compartments, with both aggregates and cement weighed in a common weighing batcher. The batch-

er has an 18-in. circular discharge opening, which permits the charging of the truck mixers without the use of a confining chute. This type of plant permits economical, speedy, and efficient operation.

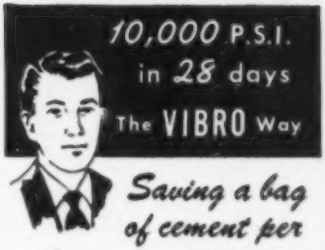
The truck mixers shown under the plant are the new Blaw-Knox "Hi-Boys." They are equipped with a revolving hopper which is placed in the upright position for loading and inverted for discharging, thereby eliminating the use of gates or doors at the discharge end of the mixer.

The three aggregate compartments in this one-stop batching plant each have a capacity of 45 tons, and the cement compartment has a capacity of 275 to 300 barrels. The weighing batcher is of the 94 BTM type, with four-beam scale. A cement elevator with undertrack unloading screw has a capacity of 50 tons per hour. The dealer is using both 2- and 3-cu. yd. Hi-Boy truck mixers.

The board of directors of the Van Ornum Co., Westmont, N. J., have announced with regret the resignation of J. S. Van Ornum as president and his withdrawal from active interest in the corporation. At the same time they announced the election of James G. Dailey to succeed Mr. Van Ornum as president.

Joseph A. Jones of Pittsburgh, Pa., has been appointed sales manager of the Concrete Machinery Division of The Yoder Company, 5500 Walworth Ave., Cleveland 2, O. Mr. Jones is a graduate of Carnegie Institute of Technology, where he studied machine design. Later he identified himself with the concrete industry, first in the machinery line, later in cement sales.

The Marietta Concrete Corporation, Marietta, O., has assigned Ohio, West Virginia, and western Pennsylvania to the Mann Engineering Company, Pittsburgh, Pa., for the sale of its industrial concrete stave silos.



Saving a bag of cement per cubic yard of concrete

More than 75 % of form costs . . .

A recent job involving the manufacture of 1400 heavily reinforced concrete gratings for Airport drainage, obtained these results by using two VIBRO-PLUS TOP DOG VIBRATORS. Two forms produced thirty (30) castings a day.

To avoid the entraining of air, a harsh mix of 2.2 gals. of water per sack of portland cement was used. The problem of distributing the concrete was an acute one, because of the heavy reinforcing and resulting small pour space. Two VIBRO-PLUS Top Dog vibrators solved this problem by rendering the concrete in this mold fluid; and consolidated the dry harsh concrete mixture by PRECISION VIBRATION.

USES: Pipes, gratings, septic tanks, and other specialty forms, also chutes, bins, hoppers.

Write us for specific information as to your particular vibration problem; and free booklet.

MAIL THIS COUPON TODAY!

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GENTLEMEN: PLEASE SEND YOUR FREE TECHNICAL BOOKLET ON CONCRETE VIBRATION.

Company _____
Address _____
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VIBRO-PLUS PRODUCTS, INC.

54-11 QUEENS BLVD
WOODSIDE L. I. NEW YORK

CONCRETE MANUFACTURER USED EQUIPMENT SECTION

WANTED

USED, TRUCK MIXERS 3 or 4½ cu. yd. with or without truck. State type, make, age, condition.

Box No. U 6, c/o Pit & Quarry Publications
538 So. Clark St., Chicago 5, Illinois

WANTED

2 — Two or three yard dumpcrete bodies, will consider truck if mounted. Also a Fleming 180 block machine.

TALMAGE CONCRETE PRODUCTS PLANT
Talmage, Nebraska

WANTED

3 KOEHRING DUMPSTERS
GAS OR DIESEL ENGINES

DAYTON COAL & IRON CORP.
Dayton, Tenn.

WANTED

50-60 steel racks with angle iron shelves for a two block machine with two conventional cored pallets size 7⅝-15⅝.

FAIRVIEW BUILDING BLOCK CO.
41 Violet Ave., Poughkeepsie, N. Y.

CEMENT COLORS — PROMPT SHIPMENTS

Write for samples and prices of "LANSCO" CEMENT COLORS in bright shades of RED, YELLOW, GREEN, BLUE, BLACK, BROWN. Manufactured by

LANDERS-SEGAL COLOR CO.
76 Delevan Street, Brooklyn 31, N. Y.

SILO STAVE MACHINE

(Air-Operated)

1—NEW MONARCH SILO STAVE MACHINE used only two seasons. Cap. of 800 to 1000 staves per day. Will sell below ½ price "as is."

WM. M. CHASE (Dealer)
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FOR SALE

1—Belt conveyor 20 feet.....$150
1—WELD-BILT Hydraulic Lift Truck, Model BN, rubber tired.....$175
1—KENT Vibra-Tamp automatic block machine $500

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PACKER-HEAD WINGS

McCracken Type — PROVED to last as long or longer — yet cost considerably less. Write for prices.

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FOR SALE

Medium sized well established block plant Northern Indiana. GoCorp equipment just installed. Building lease most reasonable. Sales well over $100,000.00 annually. Will earn ten to fifteen thousand dollars this season. Priced at $40,000.00.

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FOR SALE

Block and Brikcrete Plant with all equipment, land and buildings; or equipment only. Good location, excellent opportunity. North Central Michigan.

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CEMENT COLORS

All shades and grades the highest quality.
Write for color cards, prices and samples

RICKETSON MINERAL COLOR WORKS
MILWAUKEE 2, WISCONSIN
Established 1885

FOR SALE

READY MIX & CONCRETE PRODUCTS CO. in Eastern Kansas. Every known condition favorable. Priced right.

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FOR SALE

1—Truckman Lift Truck in good shape.$575.00
1—Barrett-Cravens Hand Lift Truck.... 195.00

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FOR SALE

1 Besser Super K-3 Block Machine
760 Steel Plain Pallets
25 Steel Welded Racks
1 Multiplex 27 cu. ft. Batch Mixer with 30 H.P. Ball Bearing Motor
All in A-1 shape for only $3,500.00.

FRIENDSHIP BLOCK & BRICK COMPANY
9970 Freeland Street TE 4-5380
Detroit 27, Michigan

FOR SALE

MODEL 9 JOLTCRETE like new. 4" and 8" and 12" attachments. Power carriage, power off bearer. Complete with racks & pallets.

Box No. U 17, c/o Pit & Quarry Publications
538 So. Clark Street Chicago 5, Illinois

IDLE EQUIPMENT WASTES MONEY

A good way to get back a large part of the money you spent for equipment you're no longer using is to SELL IT.

And, the best way to sell it is through the Concrete Manufacturer, the Market Place for supplies and services.

Let someone else have the benefit of equipment you can't use in exchange for hard cash you can use in other ways.

So important is the Concrete Manufacturer used equipment section that many readers (and there are over 24,000 of them—all potential buyers) turn to it first when C M arrives on their desk.

Tell us what you have to offer for sale or trade, we'll set up the ad for you. Mail today and watch the results.

THE CONCRETE MANUFACTURER, 538 South Clark Street, Chicago 5, Ill.

Concrete Manufacturer Used Equipment Section

Advertising rate per issue: $10.00 a column inch. 10% discount for 4 consecutive issues. (Lower rates on a contract basis.) Advertisements received by April 24th will appear in the May issue.

FOR SALE

Brikcrete plant, complete (make offer)	
Industrial Colorcrete Machine	$ 350.00
45 steel racks (for Clipper Stripper), etc., ea.	15.00
Barrett Cravens Hand Lift truck	100.00
Lewis Shephard Fork Lift truck (gas)	1750.00
Electric Welder	75.00
Acetylene Welder	75.00
Nelson Self Powered heater	250.00
70 hp. Boiler & Commercial oil burner	2000.00

Box No. U 14, c/o Pit & Quarry Publications
538 So. Clark Street Chicago 5, Illinois

FOR SALE

One MODEL A STEARNS CLIPPER with 4" and 8" and 12" mold boxes. Pallets available. 16 cu. ft. mixer and skip loader, priced for quick sale.

Box No. U 16, c/o Pit & Quarry Publications
538 So. Clark Street Chicago 5, Illinois

FOR SALE AT A BARGAIN

Multiplex Power Tamper Stripper & Ejector—new 1947. Will make bullnose sash and faced block and may be seen in operation. Sell for the price of the pallets including underfloor type elevator and 1200 pallets.

SPICER CONCRETE PRODUCTS COMPANY
Marseilles, Illinois

FOR SALE

1—Kent Stedifo Continuous Mixer with extended mixing trough, 4' longer than standard. Used only 6 months. 40% discount.

2000—8" x 16" 45% air space 3-oval core design pressed steel pallets.

CEDAR RAPIDS BLOCK COMPANY
Cedar Rapids, Iowa

FOR SALE

1—1 cu. ft. Besser Skip Loader with motor.

1—Hopper for above.

This equipment has never been used. Make us an offer. Must be sold.

F.O.B. Mount Pleasant, Pennsylvania

P. J. REGA
Ph. 3301 Mt. Pleasant, Pennsylvania

MINERAL COLORS
for
BRICK MORTAR STUCCO-PLASTER-CONCRETE

"Fine Because of Their Fineness"
Ask for samples and recommendations.

BLUE RIDGE TALC CO., INC.
HENRY, VIRGINIA

FOR SALE

1—Model N-C Jackson & Church Brick Machine—Complete with Mixer, Skip Loader & Belt Feed. Used only very short time.

Write: Box 368 Brewton, Alabama

UNBREAKABLE PALLET RINGS

Write for full information

TEXAS FOUNDRIES
LUFKIN, TEXAS

30,000 Pressed Steel Pallets

at Savings up to 50%

12000	8" exc. cond.	**35c to 45c ea.**
9000	12" exc. cond.	**60c ea.**
6000	6" exc. cond.	**35c ea.**
500	10" exc. cond.	**50c ea.**
500	3" exc. cond.	**20c ea.**
7000	4" exc. cond.	**30c ea.**
1500	4 & 8" Aluminum	**25c & 35c ea.**

1—Stearns Jolterete #7 F.O.B. Virginia	$1500.00
2—Stearns clipper block machine, ea.	750.00
2—Stearns skip loaders 18 cu. ft., ea.	500.00
2—Stearns concrete mixers 18 cut. ft., ea.	500.00
1—Multiplex chimney block machine	150.00
3—Pallet Dunkers, new condition, ea.	55.00
100—Chase steel racks—F.O.B. N. C., ea.	15.00
1—Appley twin block machine	100.00
50—Hinged racks—F.O.B. N. J., ea.	15.00
1—Gravely twin block machine	100.00

Send us tracing or code name of your pallets for quotation.

GENERAL ENGINES CO., INC.
307 Hunter St., Gloucester, N. J.
WRITE, WIRE, PHONE: Gloucester 0-2200

DUNN BRICK MACHINERY

complete plant:
16 ft. mixer & skip loader
Dunbrik machine 1500-2000 brick per hour
Dunstone Attachments
2100 Pallets—9 Racks
1—Champion Drain Tile machine 4" & 6" Heads. Capacity 4 tile per min. Total value over $10,000. Make us an offer.

McIntyre-Dunbrik Co.
295 Ave. "C" Phone 38088
Battle Creek, Michigan

FOR SALE

3—2-yd. JAEGER HORIZONTAL TRUCK MIXERS

Reconditioned & painted—
$975.00 each

FLACK EQUIPMENT COMPANY
1240 McCook Avenue
Dayton 1, Ohio
ADams 8121

BARGAIN

Used Concrete Block Equipment

3 Appley Vibrator Block Machines (Adjustable to 16" or smaller blocks)
1 Concrete Mixer Conveyor With motors
1 Concrete Hopper With dump outlets to serve each of the three vibrators
1 Hydraulic Jack For handling racks of blocks
42 Angle Iron Curving Racks
3600 Cast Iron Pallets, (approx.) 4 x 16, 12 x 8, 8 x 16

All motors, switch boxes and conduits included. About 3 years old, used 1½ years, total cost approx. $10,000.00, priced for quick sale $1,500.00 each F.O.B. Atlanta, Ga.

WOOD DAIRY SUPPLY COMPANY
130 Walker St., S. W. Atlanta, Georgia

FOR SALE

1—(Slightly used) 20' belt conveyor with reduction gearing and the 12" width belt for conveying the concrete from the mixer to the overhead hopper, complete without motor **$235.00**

1—AIR-SEALED Burial Vault Form (Never used) and as good as new. Will sacrifice for the lowest cash price of **$300.00**

1—12 cu. ft. Batch Mixer, spiral blades, flat-face pulley,—(NEW) never used and Guaranteed for one full year. **$395.00**

1—VIBRATING BLOCK MACHINE with motor, (used only 2 months). Makes 2 block at-a-time. (Cost $1600.00). Will give this outfit **FREE** to anybody agreeing to buy the 1540 metal pallets.

WM. M. CHASE (Dealer)
15 Linwood Avenue, Buffalo 2, New York

MUST BE SOLD

FOR SALE

1 Stearns Clipper Stripper Model A—equipped with 16" Mold Box
2000 8" x 16" Steel Pallets
1 28 Cubic foot Batch Mixer—Stearns
1 Hydraulic Footlift truck — WHF 11-72
Above equipment about 18 mos. old.
1 Bonded 1261C—Crusher fully equipped
1 New Holland 20CV—Pick up vertical elevator 8" buckets—25' long. Complete with motors and vibrating screen
1 3CTH-26-2 Toteall Conveyor on High Motor Mount. Complete with motor, extension cord, rubber tires. Above equipment about 12 mos. old.
Will sell as a complete unit, or separately.

LANERI BROS. CO.
6202 Avenue U Brooklyn 34, N. Y.
Cloverdale 2-5571

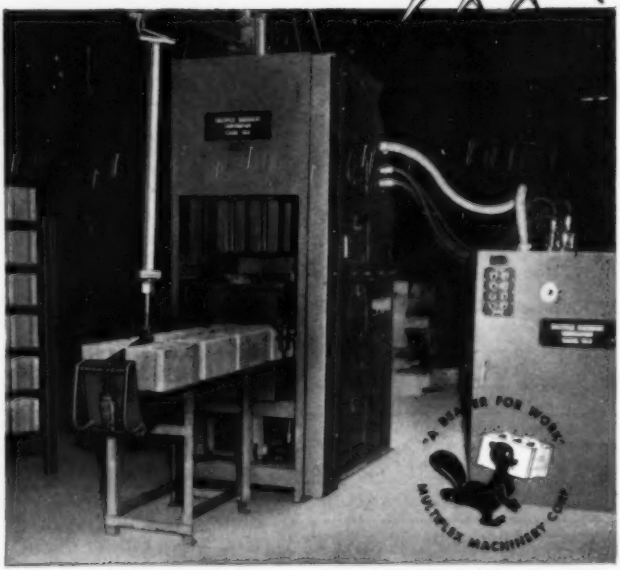
SLASH LABOR COSTS TO LESS THAN 1¢ PER BLOCK

with the MULTICO Block Master

HYDRAULICALLY POWERED • FULLY AUTOMATIC OPERATION

YES, you can really slash labor costs, break all production records, and fill orders faster and easier with the *Multico Block Master*. Just set the controls and the *Block Master* takes the aggregate, vibrates on pressure, then automatically tamps block to size, all in one operation—an exclusive Multico feature. Three men can run your entire plant—reduce overhead and produce finer quality Block faster. The *Block Master* is a standard production machine. The separate power pak can serve additional machines—another savings. The *Block Master* uses plain steel pallets, enabling you to produce any size or type of block desired.

THE MULTICO BLOCK MASTER PERMITS OPERATION OF AN ENTIRE PLANT WITH ONLY 3 MEN



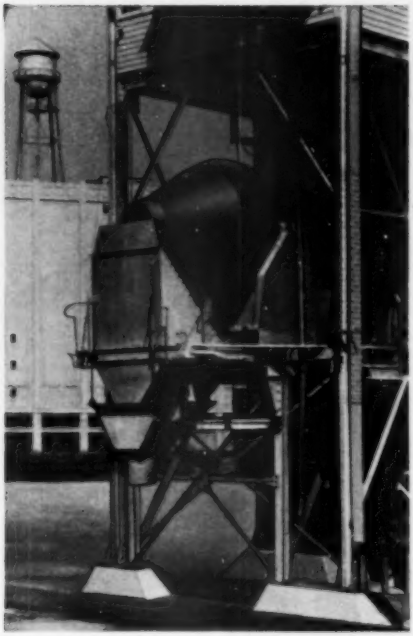
EXCLUSIVE FEATURES

- Separate Power Pak Control Cabinet
- Pressure-Vibration Plus Tamping
- Handles All Aggregates
- Makes All Sizes & Shapes of Block

Write for Free Catalog or location of nearest machine in operation.

MULTIPLEX MACHINERY CORP. ELMORE OHIO

MANUFACTURERS OF BLOCK MACHINES • MIXERS • SKIP HOISTS • STRIPPERS • ELEVATORS



World's largest Concrete Mixer. 6 cubic yard capacity. Installed in Camden Lime Company plant, Camden, N. J.

NEW "King" SIZE SMITH

Steps Up Concrete Production in Ultra-Modern Ready-Mix Plant at Camden, N. J.

The heart of Camden Lime Company's new Ready-Mix Plant is a 6 cubic yard Smith Tilter . . . the biggest mixer ever built. Frank Hineline, President of Camden Lime Company, knew that anything smaller would be a bottleneck in the production he wanted from his new plant. The 6 yard mixer discharges into a 6 yard agitator . . . ONE BATCH PER TRUCK! No trucks or drivers waiting at the plant to get under the spout. That spells maximum plant efficiency . . . faster concrete deliveries . . . more loads per day . . . increased profits.

• • •

There's a big demand for this new "King" size Smith. Orders are coming in from all over the country. Several machines shipped to Albuquerque Sand & Gravel Co., Albuquerque, N. Mex., Material Service Corp. and Consumers Company, Chicago, Ill., in addition to Camden Lime Co. Get the complete story. Ask for Bulletin 244.

•

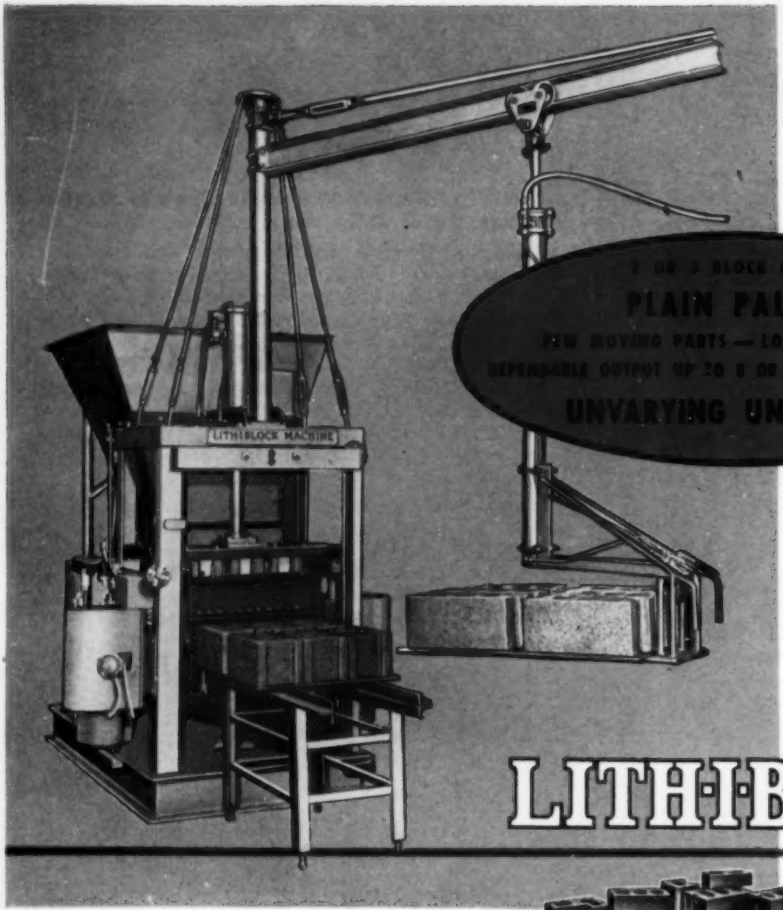
SMITH TILTERS have the famous duo-cone drum with smooth, easy-rolling mixing action. The entire batch can be discharged instantly or any part of the batch can be discharged as fast as desired, always under complete control. These dependable Tilters have more than fifty years of "know-how" behind them. That's why they take punishment that would wreck ordinary mixers in a matter of months.

SMITH-MOBILE AGITATORS have these time-tested features: Fastest end loading . . . Hinged feed chute that swings clear of the concrete when discharging . . . Closing door that can be opened wide for washing and inspection . . . "T" shaped blades that mix and discharge without segregation . . . Improved closing door with remote bearing and journal where grout will never reach it . . . Chrysler 6 cyl. engine with fluid drive . . . Automatic greasing unit for closing door main bearing and seal. Write for new Catalog No. 239.

THE T. L. SMITH COMPANY

2887 N. 32ND STREET • MILWAUKEE 10, WISCONSIN, U.S.A.

A 1680-1P



2 OR 3 BLOCK MODELS
PLAIN PALLETS
FEW MOVING PARTS — LOW MAINTENANCE
DEPENDABLE OUTPUT UP TO 8 OR 12 BLOCKS PER MINUTE
UNVARYING UNIFORMITY

LITH-I-BLOCK

YOU CAN THROW AWAY THE ASPIRIN

The men who go for this machine are the good business operators who want nothing to do with the high cost of headaches. You can talk with any of them (we'll give you the names; there's one near you) and see for yourself that these LITH-I-BLOCK producers do not fret and worry about the ills of the block business. They are out in front with a block that's as clean as a hound's tooth and as true as a die — a block that *builds* reputation, never has to make excuses. They make money on this block because of the machine's automatic efficiency, the small attention required, and the low-cost dependability of it. We tell you this so that in your plans for building a stronger position for your block business you can count on LITH-I-BLOCK to clear the way. It never has been our business to *sell* machines; our success lies in showing plants how to get rid of headaches. Can we help you? Let's get together and see!

DEPT. CM4

THE TALK OF THE INDUSTRY

Write **LITH-I-BAR COMPANY**
HOLLAND, MICHIGAN

A lot of Blockmakers Choose MODERN *Chase* CONCRETE BLOCK RACKS

■

Good Reasons for

Chase

Installations

■

Cost no more than ordinary racks

■

Built of corrosion resistant high strength alloy steel

■

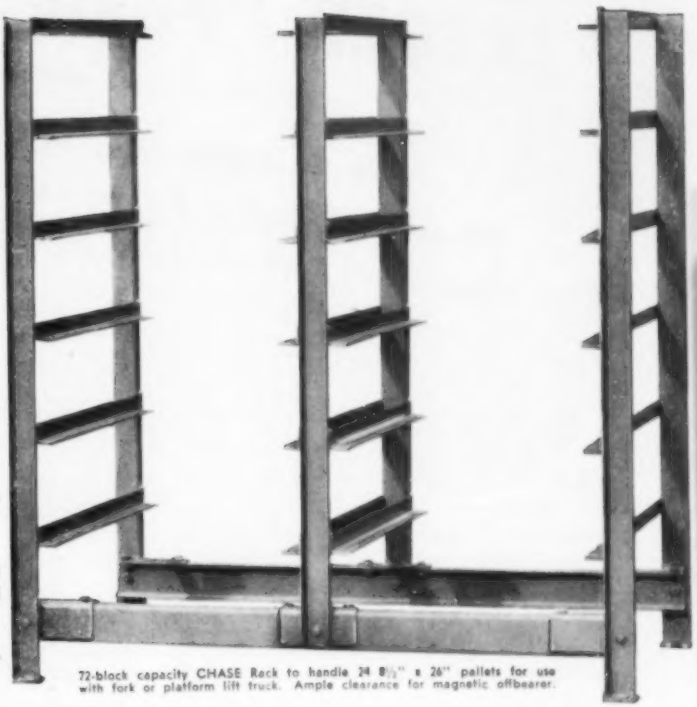
Improved rigid side sill connection

■

Easily assembled. Require no special tools or welding

■

Shipped knocked down for low freight cost



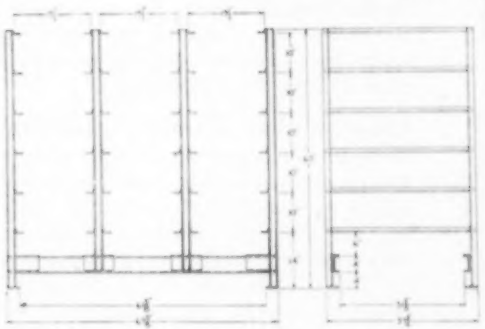
72-block capacity CHASE Rack to handle 24 8½" x 26" pallets for use with fork or platform lift truck. Ample clearance for magnetic offbearer.

The progressive concrete block producer needs the best racks available to complement his block-making equipment.

That is why manufacturers all over the country insist on CHASE Racks that combine practical design with sturdy construction. These CHASE Racks are furnished in any style or capacity rack or car.

PALLETS

We can supply plain steel pallets to any size required, as well as pallets for rack shown above.



72-block capacity, 3-compartment Rack, for handling either 18½" x 18½" or 18" x 18" pallets.

CHASE RACKS — CARS & TRUCKS

CHASE FOUNDRY & MFG. CO., COLUMBUS 7, OHIO

this is the Truck Mixer you've been waiting for
1950 model
JAEGER "Payloader"
2-3-4½-5½ yd. sizes
600 to 1600 lbs. lighter
Shorter length. Faster operation
Hundreds of dollars lower priced

10% to 16% weight saving meets strict load limitations: 600 lbs. lighter 2 yd. model, 800 lbs. lighter 3 yd., 1000 lbs. lighter 4½ yd., 1600 lbs. lighter 5½ yd.—Yet these "Payloaders" are sturdier, more rugged in frame and vital parts than older machines.

Shorter dimensions for better mounting and load distribution: 9 to 13 inches shorter frame lengths, shorter cab-to-axle requirement, load center farther forward on all models—to mount on short wheelbase trucks, and give better load balance, longer truck and tire life with all trucks.

Faster in every function—more trips, more payloads per day: Only 10 seconds per yd. to end-load dry materials thru new hopper with drum revolving at high "charging" speed. Charge wet material in one quick drop thru new quick-opening "toggle-lock" top door. *One instant turn of a hand wheel* retracts hopper for discharging. Fast drum speed, provided by Jaeger 2-speed transmission, plus low angle discharge cone and continuous blades, discharges 4″ slump concrete @ 20-25 seconds per yard, 1″ slump in 60 seconds.

No other unit on the market can match these speeds that mean more payload trips per day.

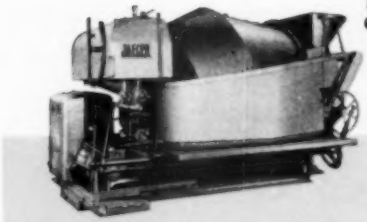
Positive, high speed water distribution by 60 lb. pressure jet: Jaeger pump takes accurately measured water from 2-compartment tank, jets it into mass of material at rate of 100 gpm under 60 psi pressure thru Jaeger-patented clog-proof jet. True mixing, which does not start until water is distributed, starts fastest in a "Payloader."

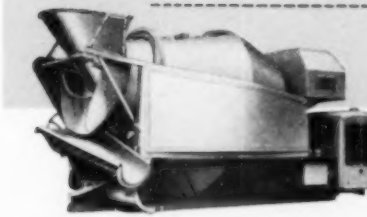
Dual-mixing, with throw-back blades and 2-speed flexibility, produces higher strength material: Superior quality of product (the reason more concrete is sold by Jaeger Truck Mixers than by any other method) results from Jaeger's exclusive continuous spiral mixing blades and throw-back re-mixing blades, plus Jaeger's "High" and "Low" speeds for proper mixing and agitation plus, in these "Payloaders," an improved drum shape of larger diameter designed for even better mixing-in-mass.

FLUID DRIVE
(if you want it)
Also choice of separate engine or truck engine power.

"PAYLOADER"
MODEL HI-DUMP:
2-3, 3-4¼, 4½-6⅛ and 5½-7⅜ yd. sizes

Jaeger also builds "Low Charge" models up to 10 yd. size as truck mixers





18 Major Improvements Mean 50% Lower Maintenance Costs, Fewer Hours in the Shop — More Hours on the Road

Example: "Spider" Drum Drive — No heavy bull-gear, no costly, troublesome big chain — no problems of adjustment or alignment. Flexible sleeve in front trunnion insures an always self-aligning drum.

Example: Power and Improved Transmission in One Unit —Engine, clutch (or fluid drive if you want it) automatic brake, and 2-speed gear box with chain drive to enclosed final gear reduction are all mounted on one frame, quickly removable as a unit. Flexible chain drive to final reduction means positive, permanent alignment of all gears.

Example: Instant Opening, Self-Aligning Hopper with Long-Life Seal: Eliminates the many headaches of other type end-loaders. One turn of a hand wheel moves entire hopper back 9" for completely free discharge. Four self-centering drive pins guide returning hopper against seal — hold it in positive alignment even on the roughest terrain. Hopper seal, self-lubricating from 5 lb. grease reservoir refilled by attached high pressure grease gun, is leak-proof, long-wearing, *easily replaceable in 30 minutes, without removing hopper.*

See these and many other Jaeger-engineered improvements at your Jaeger distributor's — or send for complete Catalog TMH-10.

THE JAEGER MACHINE CO., Columbus 16, Ohio

World's Largest Builders of Truck Mixers, Agitators

Air Compressors • Pumps • Mixers • Hoists • Towers • Aggregate Spreaders • Bituminous Pavers • Concrete Spreaders, Finishers

It pays.....

to modernize your plant... and here's the block machine to do it!

Appley-Yellen Assures You HIGH Output with LOW Investment Cost!

Economical Low maintenance and operating cost. Uses low air pressure (80-100 lbs. per sq. in.). Made to jigs and fixtures, each the same. All parts interchangeable...wearing parts few!

Efficient Auto-controlled. 3,500-block output per day with minimum crew! All blocks uniform, true-sided...low rejects and spoilage.

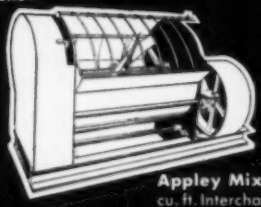
Simple to Operate Finger-tip controls; three operating levers only. Few moving parts. Easily changed for each type of aggregate.

Rugged Designed and constructed for heavy-duty operation. No high-pressure parts!

Versatile Fits into your present operational procedure. Manufactures all types of blocks from one core box equipped with quickly interchangeable cores.

APPLEY-YELLEN ALSO OFFERS:

Appley Skip Hoist -- sturdy, dependable. Fast, accurate loading. For 14 or 28 cu. ft. mixer -- on ground or above machine.



Appley Mixer -- 14 or 28 cu. ft. Interchangeable lining. Rubber-covered blades.

Appley Little Giant Slump Block Machine -- efficient, economical hand-operated

MISHCO CORPORATION ★ 615 S. W. 2nd AVENUE ★ MIAMI, FLORIDA
J. W. APPLEY & SON, INC. ★★★ ST. PETERSBURG 2, FLORIDA

Don't Install any Mixer until you have investigated the new

YODER Continuous Mixer

with vibrating, non-clogging, constant volume positive feed and other revolutionary new features

These features, in brief, are as follows:

1. ***Positive Feed:*** Unique new arrangement of mixer blades at two different angles insures non-clogging, positive feed and full head of concrete above largest block machines at all times.

2. ***Constant Volume:*** Vibrating Feeder Belt reduces all aggregates, *regardless of moisture contents*, to constant volume. Result: Feeding by volume made as accurate as feeding by weight — yet without adding anything to the first cost or operating cost.

3. ***Lower Investment:*** This continuous mixer costs much less than batch mixers of equal capacity—yet *it eliminates all the expensive equipment* between storage bins and block machine — weighing batchers with conveying system, motors, wiring and control.

4. ***Accurate Proportioning*** by means of one or two aggregate gates. Once set for any desired proportions, no further attention is needed.

5. ***Thorough Mixing:*** About 2000 agitations of the mix in passing through the barrel — ten times more than given in five minutes by the average batch mixer.

6. ***Low Maintenance:*** Repair and replacement cost cut in half or better. The only parts requiring occasional replacement are the mixing blades.

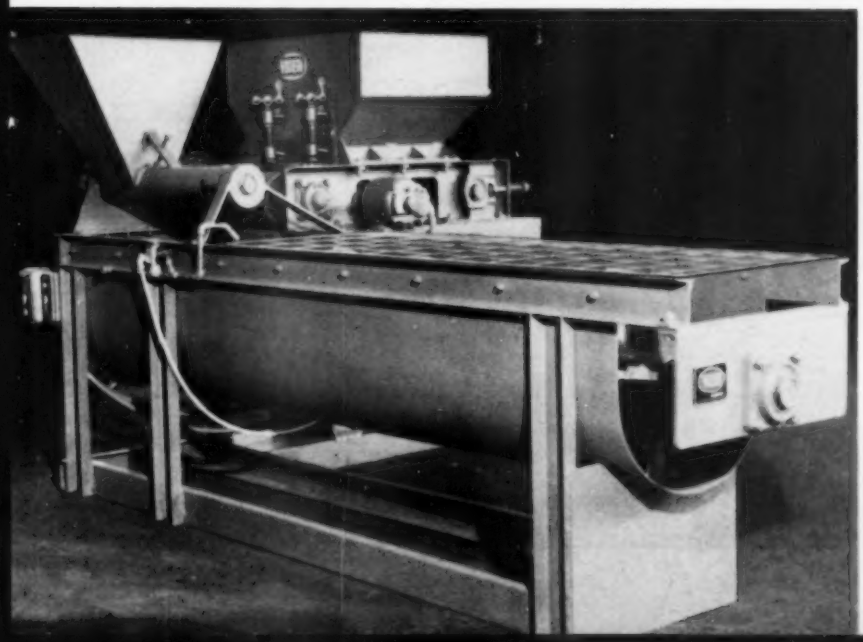
7. ***Guarantee:*** The Yoder Company for 40 years have been leaders in the building of high-production machinery. They enjoy a world-wide reputation for advanced engineering and fair dealings. With ample resources, they guarantee this machine to do everything they claim for it. They will back it to the limit!

Send for illustrated pamphlet explaining the important and unique features of this machine. If you now operate one or more block machines requiring from 5 to 20 cu. yds. per hour, sooner or later you will come to the conclusion that without this machine you cannot obtain the highest quality at the lowest cost.

So why not investigate NOW?

THE YODER COMPANY

5500 Walworth Ave. **Cleveland 2, Ohio**



The Yoder Co.
5500 Walworth Ave.
Cleveland 2, Ohio

Please send full particulars about the new Yoder Continuous Mixer with positive, non-clogging feed and vibrating constant volume densifier. Address as follows:

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Every issue of PIT AND QUARRY is full of information you can use in your business. It gives you practical ideas on every phase of your operations.

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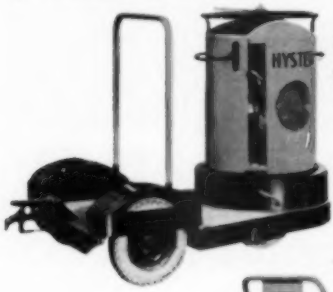
4-50

4 New HYSTER machines for HORIZONTAL MATERIALS HANDLING

- ✓ **FULLY AUTOMATIC CLUTCH AND TRANSMISSION. No gear shifting. No levers.**
- ✓ **THROTTLE RING — press it and the truck moves. The further you depress it the faster the truck goes. No gear shifting.**
- ✓ **TRUCK TURNS IN ITS OWN LENGTH. Entire Turret power unit can be completely rotated in either direction.**
- ✓ **ECONOMICAL. Uses less than one gallon of gasoline per average 8-hour shift. Wisconsin 6-HP air-cooled engine.**
- ✓ **COSTS LESS TO BUY THAN MOST POWER-DRIVEN "WALKER CONTROLLED" HAND PALLET OR PLATFORM TRANSPORTING TRUCKS.**
- ✓ **AVAILABLE IN VARIOUS SIZES.**



HYSTER *Salsbury* TUG

Tows trailer trains up to 15,000 lbs. Most maneuverable towing unit on the market.

HYSTER *Salsbury* CARGO TRUCK

Capacity 4000 lbs. Low platform makes bulky or heavy cargo handling easy.

HYSTER *Salsbury* PALLET TRUCK

Transports loaded pallets weighing up to 4000 lbs. Available in several fork lengths. Hydraulic fork lift.

HYSTER *Salsbury* PLATFORM TRUCK

Handles loads of 4000 pounds on skids or tote boxes. Available in several lengths and widths. Hydraulic platform lift.

HYSTER *Salsbury* Turret Trucks

FOR HORIZONTAL MATERIALS HANDLING

HYSTER *Salsbury* Turret Trucks are LOW COST HORIZONTAL TRANSPORTERS for any type of load up to 4000 pounds. They do the same jobs faster, safer, more economically than man-pulled or power-driven hand pallet or platform trucks of the "walker controlled" type. They team up ideally with all other materials handling systems or machines.

Hundreds of Turret Trucks are in use. They are low in first cost, low in operating cost, high in job performance, are extremely simple to operate.

HYSTER *Salsbury* Turret Trucks are sold—and more important — serviced by Hyster dealers all over the world. Ask for a demonstration. Or mail the coupon for a copy of the Turret Truck catalog, just off the press.

HYSTER® COMPANY

Manufacturer of a complete line . . . HYSTER fork-type Lift Trucks, Straddle Trucks and Karry Kranes — 2,000 lb. to 30,000 lb. capacity; HYSTER Salsbury Turret Trucks — 4,000 lb. capacity.

HYSTER CO., 2926 N. E. Clackamas Street, Portland 8, Oregon
Please AIR MAIL copy of the new HYSTER Salsbury Turret Truck catalog.

FIRM NAME _____

MY NAME _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____

OSWALT SERVICE in your plant increases your profit by at least sixty dollars per day.

Every 100 days you operate your Besser Vibrapac you pay for OSWALT SERVICE in other ways, without having the benefits.

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ENGINEERING SERVICE CORPORATION

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RESEARCH DEPARTMENT

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Please send me catalogs and prices concerning the following items checked below:

- ☐ Admixtures
- ☐ Air Compressors
- ☐ Air Entraining Agents
- ☐ Autoclaves
- ☐ Bag Cleaners
- ☐ Batchers
- ☐ Batching Plants
- ☐ Belting (Rubber)
- ☐ Bin Gates
- ☐ Bin Level Controls
- ☐ Bins and Batching Equipment
- ☐ Blades, Masonry Saw
- ☐ Block and Brick Machine
- ☐ Boilers
- ☐ Bucket Loaders
- ☐ Buckets, Concrete
- ☐ Buckets, Elevators
- ☐ Buggies, Concrete
- ☐ Bulk Cement Handling Equipment
- ☐ Bulk Cement Storage Plants
- ☐ Calcium Chloride
- ☐ Car Pullers
- ☐ Colors, Cement and Mortar
- ☐ Conveyors, Belt
- ☐ Conveyors, Portable
- ☐ Conveyors, Screw
- ☐ Curing Agents
- ☐ Curing Equipment
- ☐ Cutters, Bar
- ☐ Dispersing Agents
- ☐ Flooring Systems
- ☐ Forms, (Pipe, Joist, Ornamental, etc.)
- ☐ Guns, Color Spray
- ☐ Hardening Agents
- ☐ Heaters, Concrete Mixer
- ☐ Hoisting Equipment, Concrete
- ☐ Hoppers
- ☐ Joist & Slab Machines
- ☐ Kilns, Curing Concrete
- ☐ Lift Trucks, Electric
- ☐ Lift Trucks, Gasoline
- ☐ Lift Trucks, Hand
- ☐ Lightweight Aggregates
- ☐ Meters, Entrained Air
- ☐ Meters, Water
- ☐ Meters, Sand Moisture
- ☐ Mixers, Concrete (Batch)
- ☐ Mixers, Concrete (Continuous)
- ☐ Mixers, Truck
- ☐ Mixing Plants, Central
- ☐ Molds, (Pipe, Joist, Ornamental, etc.)
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INDIVIDUAL .....

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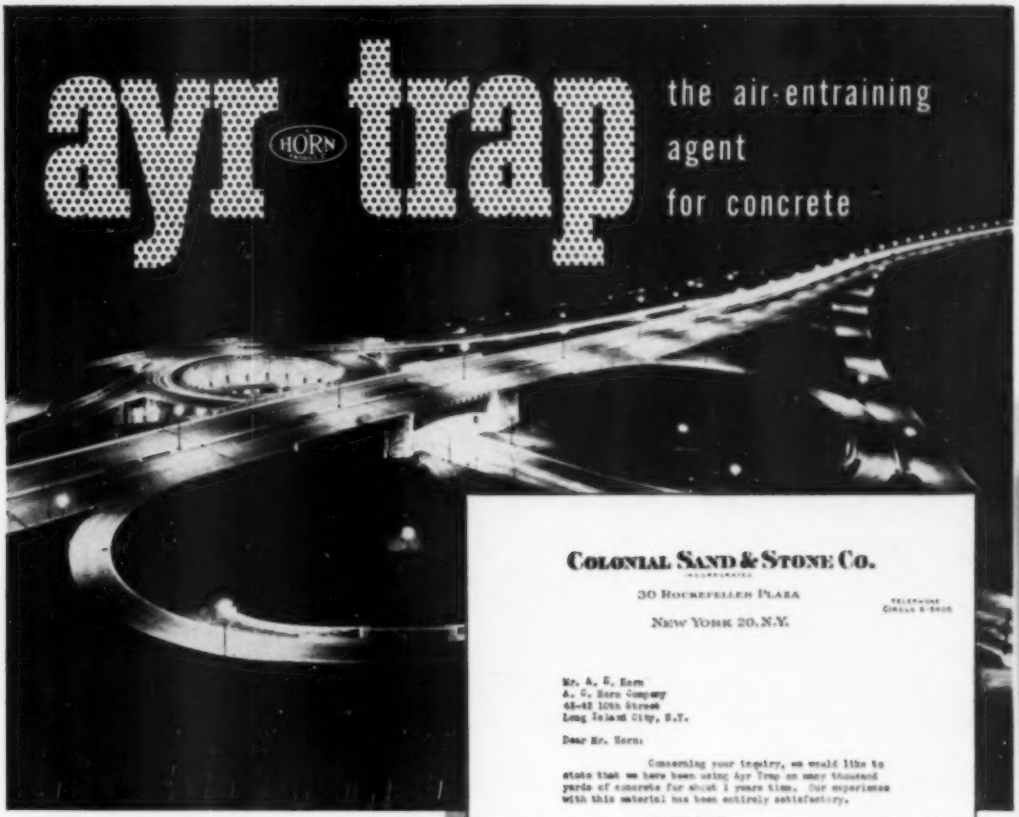
Looking for Used Equipment?

Refer to the listings in this issue for a wide variety of used and surplus machinery and supplies.

ayr-trap

HORN

the air-entraining agent for concrete



COLONIAL SAND & STONE CO.
INCORPORATED

30 ROCKEFELLER PLAZA
NEW YORK 20, N.Y.

TELEPHONE CIRCLE 6-5600

Mr. A. C. Horn
A. C. Horn Company
43-42 10th Street
Long Island City, N.Y.

Dear Mr. Horn:

Concerning your inquiry, we would like to state that we have been using Ayr Trap on many thousand yards of concrete for about 2 years time. Our experience with this material has been entirely satisfactory.

We have found:

1. Concrete with this mix does not suffer any reduction in strength in the richer mixes and in the leaner mixes show an increase in strength.

2. Same is not sensitive to variations in the type and amount of sand incorporated in the mixes, therefore, we are not called upon to change the amount we add everytime a new sand or a different mix is used.

3. No elaborate equipment is necessary for dispensing same. Ordinary pint measure is used. Variations on the recommended quantities does not seriously affect the results.

4. Adding this material to the mixes simplifies our plant operations in that we do not have to tie up any storage hoppers as would be required with the interground cement. Errors that could result with the variations of cement as required are reduced.

Very truly yours
COLONIAL SAND & STONE CO., INC.
Frank L. Kelly
Vice President

Indispensable for Heavy Concrete Work

Ayr-Trap can be added at batching plants or on the job. It makes concrete more durable, increases its plasticity and minimizes segregation and bleeding. Ayr-Trap improves scaling resistance, chloride salt resistance and protects concrete against its most common failures. Ayr-Trap permits a reduction in the water cement ratio. Used in liquid form as follows: 3 liquid ozs. per cubic yard of 5 or 6 bag mix—1 pint per 5 cubic yds. 6 bag mix.

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Manufacturers of materials for building maintenance and construction—established in 1897

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SUBSIDIARY OF SUN CHEMICAL CORPORATION

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Please send complete data on AYR-TRAP.

NAME_____ TITLE_____

COMPANY_____

ADDRESS_____

CITY_____ STATE_____

there's a

TON OF DUMPTOR STRENGTH

for every ton of payload

ASK TOO ABOUT KOEHRING HEAVY-DUTY ½, ¾, 1½, 2½-YD. EXCAVATORS

Write for illustrated bulletin on new 2½ yard Koehring 1005 Shovel.

Dumptors* stand up under the severest shocks of shovel-loading 1½ to 2½ yards or rock at a pass because they're built extra tough for rock handling. There's more than a ton of net vehicle weight for every ton of payload.

All-welded body sides, ends and bottoms are heavily reinforced with 4" channel ribs. More than triple strength has been built into the bottom . . . seasoned 1⅝" oak timbers are securely bolted between two layers of 5/16" steel plate. Steel-oak-steel construction cushions shocks of rock loading. Free-swinging, kick-out pan adds another tough 3/16" high-manganese steel plate for extra protection. Dumptor also has: rugged main frame, 8" ship-channels, heavily trussed . . . one-piece steel drive-axle housing and transmission case . . . 4" chrome steel drive axles . . . cast alloy steel "I" beam steering axle. All add extra strength to Dumptor chassis.

Heavy-duty construction like this assures you that Koehring Dumptors will stand up under your toughest assignments . . . that there will be little down time with Dumptors on your job. For complete facts, see your Koehring distributor today.

*TRADEMARK REG. U. S. PAT. OFF.

FOR HEAVY-DUTY EXCAVATING check Koehring 605, shown at left with dragline . . . quickly converts to 1½-yd. shovel, sow, clamshell, or lift crane. Big 1005 (right) gives you steady, cost-cutting service as 2½-yd. excavator, dragline, or lift crane. 2 smaller Koehring classes ¾-yd. 304, and 1½-yd. 505, on crawlers or rubber, handle all standard excavator attachments. Ask for catalogs.

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KOEHRING COMPANY

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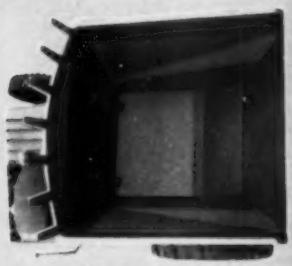
SUBSIDIARIES: KWIK-MIX • PARSONS • JOHNSON

DUMPTOR BODY HEAVILY REINFORCED All-welded sides, ends and bottom of heavy-duty 6-yard Dumptor body are heavily ribbed with 4" channels. High-carbon steel gives extra strength and protection at stress points...where the abrasive action of rock handling is most severe.



KICK-OUT PAN adds an extra 3/16" high-manganese steel plate on top of sturdy Dumptor bottom . . . breaks suction of sticky materials for fast, clean dump. Big 8' x 8' top gives easy-to-hit target for fast loading over the side or end with less spillage.

1 SECOND GRAVITY DUMP

. . . Operator trips body release lever . . . gravity instantly tilts scoop-shaped body. One second later, load is out and Dumptor is off for another load. No slow-moving body hoists . . . no body hoist maintenance.

CK910X

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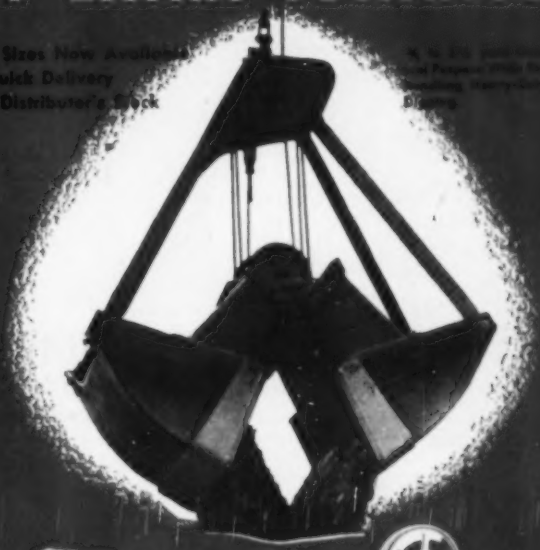
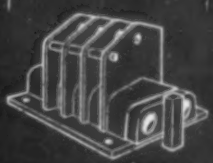
Faster Operation for EXTRA TONNAGE

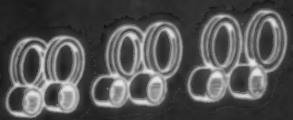
Most Sizes Now Available for Quick Delivery from Distributor's Stock





FASTER OPERATION, because lower sheaves are angle mounted to maintain natural cable alignment.

FASTER OPERATION, because double hinge construction gets big bites with fast closing in any material.



FASTER OPERATION, because sealed needle bearings on sister sheaves eliminate friction.

FASTER OPERATION, because all-welded clams, smooth inside and out, dig and dump with less resistance.

THE C. S. JOHNSON COMPANY

KOEHRING SUBSIDIARY, • CHAMPAIGN, ILLINOIS

NOW IS THE TIME / to equip . . . to sell the profitable lintel market

There's a

KENT LINTELATOR

including the New Super, for every plant, large or small.

Can also be adapted to make SILLS, CRIBBING and FENCE POSTS

Yes, there's considerable extra business to get and increased profit to be made in lintels if you produce them fast and economically on a Kent Lintelator.

More and more block makers are proving this as indicated by enthusiastic reports. Several have installed additional machines.

Lintelator not only enables manufacturers to reach a ready market but expands this market through inherent advantages.

Lintels can match block texture. Any aggregate can be used. They're installed by masons. There's no delay or extra expense for steel erectors. Builders really like them and buy them in unexpected volume.

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Get The NEW BULLETIN Just Off The Press

The **KENT MACHINE CO.** Cuyahoga Falls, Ohio

Manufacturers of CONCRETE PRODUCTS MACHINERY *Since 1925*

Quality **CINDERS**

(ANTHRACITE)

CARLOAD SHIPMENTS

CLEANED, SCREENED, CRUSHED

SIZING: HALF INCH DOWN TO POWDER — READY MIXED FOR YOUR MIXER — LOW IN COMBUSTIBLE CONTENTS — FREE OF STAINING CAUSES.

STEADY DEPENDABLE SUPPLY SHIPPED ON SCHEDULE

WRITE US NOW — MENTION RAILROAD DELIVERY

H. HESSEY MILLER, CHESTER, PA.

Here is the BIG PROFIT machine

THE MARVEL JR. — DRAIN TILE MACHINE

Included on the Marvel Jr. are numerous Pats. Pend. features of our Marvel Automatic. Now, no expensive, heavy, clumsy, in-the-way stationary machine is required.

MARVEL JR. is fast. Mounted on casters. Tile are off-bearred directly onto the floor and machine pushed forward as necessary. Save steps! Speed production!

The Marvel Jr. with standard equipment makes 4-inch round drain tile. Attachments can be secured for making 3", 5", and 6" round drain tile and also 4" Hexagon shape drain tile.

We are also the largest manufacturer of SPECIALTY MOLDS for making lawn, garden, porch and other concrete ornamentals.

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CONCRETE MACHINERY COMPANY

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Specially designed inserts and parts for the precast concrete industry.

Non-corrosive of high tensile strength metal. Accurate to specification and close tolerances. Perfect threaded units.

What are your problems and requirements? We invite your inquiries.

STAR EXPANSION PRODUCTS COMPANY

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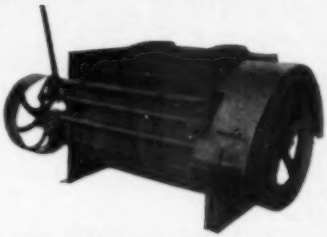
PRASCHAK MIXER



8 Cu. Ft.
$450.00
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"The Mixer That Can Take It"

Compare with mixers selling at Twice the Price!

SHIPPED SAME DAY ORDER RECEIVED!

We also manufacture

BLOCK MACHINES, CONVEYORS
CINDER CRUSHERS, SILO STAVE
MACHINES, LIFT TRUCKS, CUP
ELEVATORS, ROTARY SCREENS

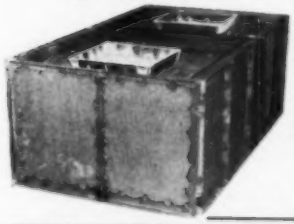
WRITE FOR LITERATURE AND PRICES

PRASCHAK MACHINE CO.
MARSHFIELD WISCONSIN

CARPENTER SEPTIC TANK FORMS

and handling equipment are preferred by large precast tank manufacturers because they are:

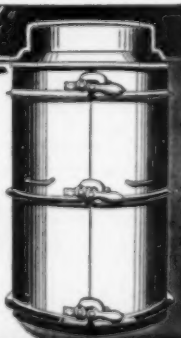
QUICKLY *poured stripped handled reset for pouring again*



And lastly, loaded with a Carpenter Delivery Rig and set in the hole by ONE MAN.

CARPENTER MANUFACTURING COMPANY
Phone 22018
R.F.D. 1, Box 470
Richmond 22, Virginia

THE "Quinn Standard" FOR CONCRETE PIPE



The Quinn Standard is known as the best the world over, wherever concrete pipe is produced and used. Backed by over 35 years' service in the hands of hundreds of Quinn-educated contractors, municipal departments and pipe manufacturers who know from experience that Quinn pipe forms and Quinn mixing formulas combine to produce the finest concrete pipe at lowest cost.

QUINN HEAVY DUTY PIPE FORMS

For making pipe by hand methods by either the wet or semi-dry processes. Built to give more years of service—sizes for pipe from 10" up to 120" and larger—tongue and groove or bell end pipe at lowest cost.

WRITE TODAY. Complete information, prices, and estimates sent on request.

Also manufacturers QUINN CONCRETE PIPE MACHINES

QUINN WIRE & IRON WORKS 1627 12TH ST BOONE IA

SPECIFICATIONS are important with CEMENT PAINT, too!

The blocks you manufacture must meet certain size and compressive strength specifications. Bedlam would rule in the building industry if every manufacturer made blocks in a size to suit his fancy. It's just as important that the cement paint you sell meet exact specifications. *If cement paint doesn't have the right cement content, it may fail within 2 years when it should last 4 or 5 times as long!*

Medusa Cement Paint, like your block, complies with certain specifications . . . meets Federal Specification TT-P-21, Type II, Class A, which calls for 80% portland cement base. Medusa Cement Paint has a base of triple-ground white portland cement . . . won't peel or flake off your block . . . actually seals out mild dampness! Good cement paints with a high cement content are always packed in metal, for they would become hard as a rock in time when packed in cardboard. For information on the best paint for concrete block, Medusa Cement Paint, write us today. Address Medusa Products Division, Medusa Portland Cement Co., 1036-3 Midland Bldg., Cleveland 15, Ohio.

BEST for Masonry Surfaces

MEDUSA PAINTS

REG. U. S. PAT. OFF.

INCREASED PRODUCTION ✓
LOWER COST ✓
BETTER PIPE ✓

THREE & FOUR FOOT LENGTHS
4" to 15" B & S
6" to 16" T & G

MODEL "C"

HYDRAULIC PIPE MACHINE

Produce your concrete pipe on a Dixon Model "C" Hydraulic Pipe Machine and you maintain a good margin of profit despite highly competitive prices.

Fingertip single valve control . . . variable speed drive with instant change . . . variable-action hydraulic pump that can be changed instantly while running . . . a completely automatic spinning bell-packer . . . a table that rises, lowers and locks automatically . . . these and other quality features assure top production, better pipe and lower costs with any crew. All wearing parts are of long lasting, wear-resisting alloys and complete stocks are carried for immediate delivery of any part.

Write today for complete information on this efficient machine. It's your low cost way to higher profits.

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Manufacturers of:

Dixon Pipe Machines
Pipe Bend Machines
Dixon Mixers

Dixon CONCRETE MACHINERY

Septic Tank Forms
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PALLETS

24 Page Catalogue

Every Block Maker

SHOULD HAVE ONE

Shows a Complete Line of
STEEL CORED PALLETS

Write for it – FREE

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WE ARE FROM MISSOURI!

LET US "SHOW YOU"

WITH VISIBLE MIXING...

FOR DRY BATCHING PLANTS OR CENTRAL MIXING PLANTS

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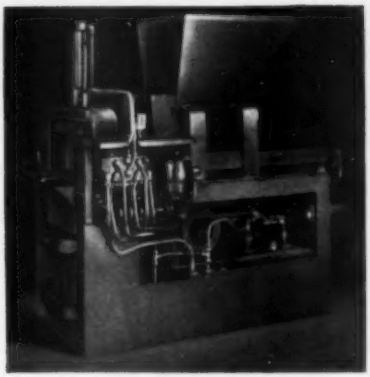
BLOCK MACHINE EFFICIENCY AT ITS PEAK POINT



The New, Revolutionary

HYDRO-KORPAK

At last comes a block machine of streamlined compactness that brings low-cost automatic production within reach of men of modest capital. One that combines the four major objectives of scientific compacting . . . hydraulic operation, electrically controlled . . . one-man labor . . . and moderate price. All in order to produce a super-fine block — marked by the utmost in accuracy, smoothness and density — at remarkably low production costs. † Among the outstanding construction highlights is lateral compacting, whereby swiftly oscillating cores pre-densify the material in advance of the final intensive squeeze exerted by the powerful hydraulically operated ram. Thus is combined the combination of lateral and vertical packing, with uniform density in every cubic inch. † Regularly equipped to make nominal 8 x 8 x 16" in full and fractional sizes. Attachments available for four other thicknesses: 4", 6", 10", 12". Modular conformation in all dimensions, but can be supplied for making the old standard sizes. † Finely engineered. Precision built. Evidence of rugged construction is a gross weight of more than 2¼ tons. Compactness is shown by over-all dimensions of 90 inches long by 53 inches wide. Fully self-contained. † Write for copy of the new descriptive catalog.

The Superfine Block

CONCRETE EQUIPMENT COMPANY

531 Ottawa Ave., Holland, Mich.

with truck-man !"

And that's not hay! That's what block plant operators across the country tell us they save with this economical, rugged truck. One man's time . . . every day . . . the whole year 'round . . . *that* adds up!

You save up to $300.00 and more during the first month you put Truck-Man to work in your block or brick yard . . . and you continue to save at that rate during years of faithful, dependable Truck-Man service.

Truck-Man is a light, speedy, highly maneuverable truck that works a shift on little more than a gallon of gas . . . requires minimum maintenance . . . has simple controls any worker quickly learns to operate. The special 62" platform handles even 72 block racks . . . those extra big loads that mean more profit per trip between block machine and curing room. Various platform heights, widths and lengths available to suit your operation.

There's an extra dividend for you, too, in the gentle treatment your blocks get. Truck-Man's easy hydraulic lift and drop, soft *start* and *stop*, and rubber-cushioned ride spot your racks gently . . . no costly checking of green blocks to eat up profits.

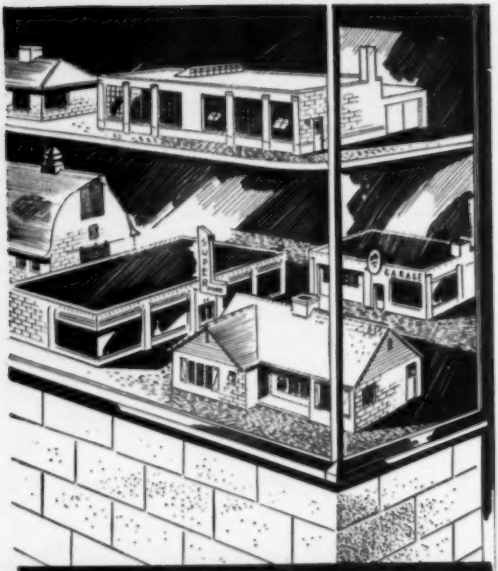
New 1950 catalog describes three low-cost Truck-Man models. You owe it to yourself to get the whole story on this money-maker. Coupon brings your copy, at no obligation. Mail it now. Sales and service in 93 centers across the nation!

truck-man Div. of The KNICKERBOCKER CO.
571 LIBERTY ST. • JACKSON, MICH.

NAME _____ TITLE _____

ADDRESS _____

CITY _____ ZONE _____ STATE _____



Is your window display selling CONCRETE MASONRY?

Retail merchants know from experience that attractive window displays really sell goods.

Most concrete products manufacturers have no windows in which to display the long-lasting and economical buildings made from their products. Yet, each community has many examples of quality concrete masonry structures. These buildings are, in effect, the real window displays of the concrete products manufacturers.

Promotion-minded concrete products manufacturers, being aware of this, keep a list of the best homes, stores, garages, factories and farm buildings at their fingertips. Such a list enables them instantly to select good examples to show to a prospective owner or his builder or architect when he inquires about concrete masonry construction. Every good job so promoted helps sell others and, like the retail window display, builds business.

Such effective promotion is one of three essential ways to build business. The others are: (2) making quality block that complies with ASTM and Federal specifications for moisture content, strength and water absorption and (3) recommending only contractors and builders who can be depended on to deliver quality concrete masonry construction.

PORTLAND CEMENT ASSOCIATION

33 W. Grand Avenue, Chicago, 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete...through scientific research and engineering field work

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*See also detailed information in 1949 Pit and Quarry HANDBOOK and Concrete Industries Yearbook

Another Leader IN THE CONCRETE PRODUCTS INDUSTRY PREFERS BESSER VIBRAPACS!

● New office of Cedar Rapids Block Co., now under construction. Vibrapac Soffit Block are being used for the roof. Acrow Telescopic Centers supplied by Besser.

● Window opening in new office building. Note application of Dur-O-Wal reinforcing.

● Workman laying Vibrapac Soffit Block on Acrow Floor Centers.

Harold L. Spaight, Former President of NCMA, Operates a Two Vibrapac Plant

Twenty years ago, the production of block at the Cedar Rapids Block Company plant was only 1000 units per week. Today, operating two Vibrapacs, their production is approximately 60,000 units per week.

An important factor in the development of concrete masonry, Mr. Spaight is a former President of N.C.M.A. and one of the principal producers of concrete masonry units in the middle west. In addition to producing sand and gravel block, Waylite units, floor and roof slabs and precast joists, Mr. Spaight is the inventor and manufacturer of Dur-O-Wal, a unique type of trussed steel reinforcing for concrete masonry walls.

BESSER MANUFACTURING COMPANY

Complete Equipment for Concrete Products Plants

120 - 50TH STREET • ALPENA, MICH., U. S. A.

★ This is the 83rd of a series of advertisements featuring some of the leaders of the Concrete Products Industry who are today stepping up block production with Besser Super Vibrapacs. Other leaders will be featured in subsequent issues.

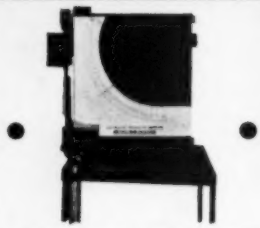
● Modern plant of Cedar Rapids Block Co. equipped with every facility for the production of high grade masonry units.

ONE SET of PLAIN PALLETS for ALL SIZES of UNITS

BESSER

SUPER VIBRAPAC | BATCH MIXERS | SKIP LOADERS | BLOCK CUBERS | AGGITE PLANTS | ACROW CENTERS | GENUINE PARTS

Milliron's Department Store, Los Angeles, Calif. Archt.—Gruen & Krummeck; Contr. — McNeil Construction Co. Pozzolith Ready-Mixed Concrete supplied by Consolidated Rock Products Co. —all of Los Angeles, Calif. Right photo—Store's Roof Provides Parking Space for 220 Automobiles. Pent House Shops, Restaurant, Beauty Shop, Playroom and Auditorium Also On This Level.



POZZOLITH AUTOMATIC DISPENSER

Operator delivers the correct amount of Pozzolith, in liquid form, required for a batch, by simply setting the control dial and opening valve.

OVER 400 LEADING READY-MIXED PLANTS ARE NOW EQUIPPED WITH THIS DEVICE . . .

WHY?

Because a producer can, at lower cost:

1. Produce waterproof concrete . . . with normal Portland cement.
2. Produce high-early strength concrete . . . with normal Portland cement.
3. Produce air entrained concrete without strength loss . . . with normal Portland cement.
4. Produce all of the above properties out of one cement bin . . . with normal Portland cement — stepping up production, reducing inconvenience in handling and cutting costs.

In normal mixes, concrete of any given durability, strength and workability, is produced more economically with Pozzolith than with any other material on the market, added at the mixer or inter-ground.

Ultra Modern Store with *Parking Roof*

Built With POZZOLITH READY-MIXED CONCRETE

Easy placeability, good cohesiveness and *assured strength* were obtained in the construction of this modern department store with Pozzolith added with the Master Builders' dispenser. Other advantages resulting from the use of Pozzolith Ready-Mixed Concrete:

1. EASY, ACCURATE CONTROL
2. MINIMIZED SHRINKAGE
3. REDUCED PERMEABILITY
4. GOOD APPEARANCE
5. ECONOMY

Over 400 leading ready-mixed plants in all parts of the country are producing Pozzolith Concrete — and many top design engineers are specifying it — for the same reasons.

Write for full information.

the MASTER BUILDERS Co.

CLEVELAND 3, OHIO TORONTO, ONTARIO

GUARANTEED!

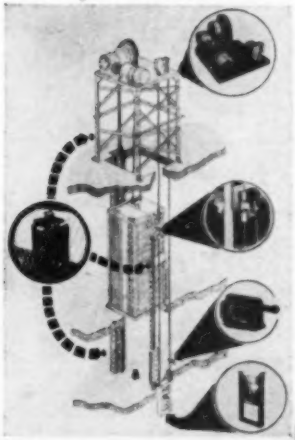
HOMER permanent "non-electric" magnetic pulleys are guaranteed to equal or exceed the performance of electro magnetic pulleys

With HOMER non-electric Permanent Magnetic Pulleys, you eliminate Power Failures; Burn-Outs; Atmospheric and Temperature restrictions; Wet or Dry locations, because HOMERS are not affected by these natural elements. Homers are available for light, standard or heavy-duty service. Write today for bulletins describing this line of GUARANTEED HOMER MAGNETIC PULLEYS.

Homer The HOMER MANUFACTURING CO., Inc.
DEPT. 1-52 LIMA, OHIO

Producers of Magnetic Separator Equipment Since 1923

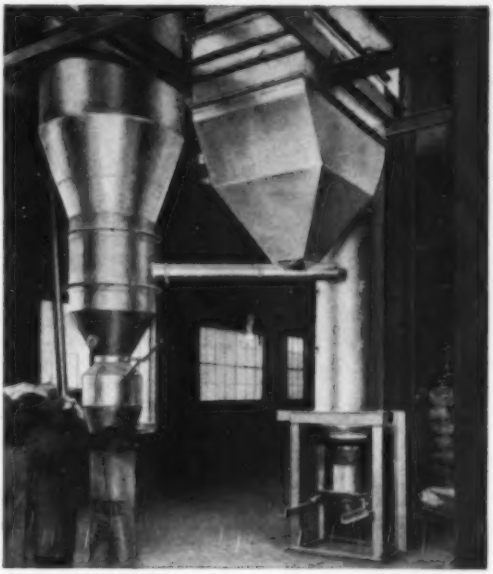
save time . . . save money with EHRSAM ELECTRIC MANLIFTS



Rapid, inter-floor transportation for your employees means more productive time. More production means more profit. Time is saved and your money is saved. Illustrated here is the electric operated, cage-type manlift made in 300 lb. and 500 lb. capacity. Other types available. Reasonable installation costs bring you real savings. Write today for complete information.

THE J. B. EHRSAM & SONS Manufacturing Co.
ENTERPRISE, Established 1871 KANSAS U.S.A.

Processing Plants for PERLITE



by JOHNSTON

- **MAXIMUM PRODUCTION**
  Operates continuously at approximately thirty 4 cu. ft. bags per hour. Full automatic temperature control. Automatic operation from feed hopper to bag. Built-in dust control system.
- **MINIMUM COST**
  Only one man required to operate! Efficient design makes possible low initial cost. Operates on light grade oil or any gas, and low pressure (16 oz.) air.
- **TOP QUALITY PERLITE**

IT'S LIGHT!
8-10 pounds per cubic foot.

IT'S SHARP!
Perlite particles are sharp like good plaster sand.

IT'S WHITE!
Perlite is of maximum whiteness. Plant will not discolor material.

OVER THIRTY YEARS EXPERIENCE
IN FURNACE DESIGN & MANUFACTURE

For Additional Information Request Catalog Q1250

JOHNSTON MANUFACTURING COMPANY
2825 EAST HENNEPIN AVENUE MINNEAPOLIS 13, MINNESOTA

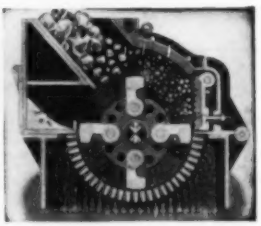
For Cost Reduction on Material Reduction...

WILLIAMS' "HEAVY-DUTY"

HAMMERMILLS

Built to take 6" feed and reduce to agricultural limestone, ¾" stone and other small sizes in *one operation!* Crushing occurs on unusually heavy breaker and grinding plate before reaching grate. This permits grates to be used for sizing only, minimizing wear. The result; more output, more quickly reduced at less operating cost.

Sectional view of Williams "Heavy-Duty" hammermill, with heavy liners and grinding plate for limestone and other hard material. Particular attention is directed to the grinding plate adjustment which assures uniform close contact of hammers and grinding plate at all times. Also note the metal trap which provides an outlet for the escape of tramp iron.



WILLIAMS ALSO MAKES...

Heavy-duty hammermills in smaller sizes for all quarry operations; impact and roller mills for 200 to 325 mesh grinding; drier mills; air separators; vibrating screens; steel bins; complete "packaged" crushing and grinding plants.

WILLIAMS PATENT CRUSHER AND PULVERIZER CO.
802 ST. LOUIS AVE. ST. LOUIS 6, MO.

WC48.4

WILLIAMS
CRUSHERS GRINDERS SHREDDERS

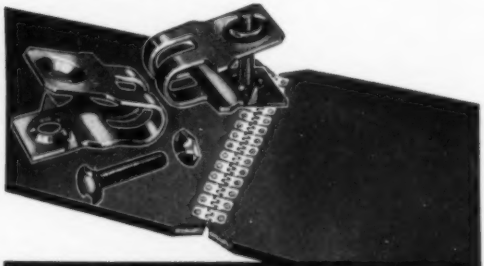
HINGED PLATEGRIP
BELT FASTENER No. 500

For Heavy Conveyor Belts of changing length

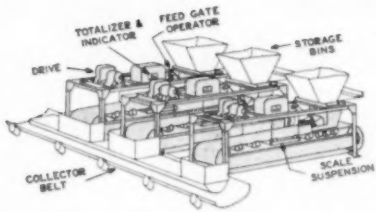
These heavy-duty belt fasteners make a strong, flexible joint in conveyor belts, belts of any width and of from ⅜" to ½" thickness. They offer special advantages in mines, quarries or industrial setups where length of position of belt is frequently changed, because sections can be removed or added at will. Joints are opened for this purpose by simply pulling out the hinge pin.

Easily and quickly applied on the job or in the shop. Special design gives deep compression into belting and smooth, flush joint.

Write for Circular.



ARMSTRONG-BRAY & CO.
5394 NORTHWEST HIGHWAY CHICAGO 30



TRANSPORTOFEEDERS

Automatically transport, weigh, indicate, integrate, totalize tonnage and maintain a pre-set rate of feed for blending raw materials.

SINTERING MACHINERY CORP.
TRANSPORTOMETER DIVISION
70 Pine Street — New York 5, N. Y.

In Canada
Nichols Engineering & Research Corp. of Can., Ltd.
1477 Sherbrooke Street, West, Montreal 25

BROADCAST and SECTION

Royal E. Burnham
Attorney at Law
Patent and Trade-Mark Causes
3201 Tennyson Street, N. W.
WASHINGTON 15, D. C.

Quarries *Crushing Plants* *Cement Plants* *Storage Methods* *Operating Costs*
E. Lee Heidenreich, Jr.
Consulting Engineer
67 Second St., Newburgh, N. Y.
Phone 1828
Operation *Plant Layout* *Design* *Construction* *Appraisals*

Research Equipment Plant Design
WOLF G. BAUER
Consulting Engineer
CALCINATION & HYDRATION OF LIME, DOLOMITE, MINERALS
EXPANDED AGGREGATE, ROCK WOOL, HYDRAULIC CEMENTS
HEATING — COOLING — PROCESSING BY FLUIDIZATION
5213—11th N. E., SEATTLE 5, WASHINGTON VE 3674

Diamond Core Drilling
CONTRACTORS
Fireclays, coal, limestone, gravel deposits, all minerals. Blast hole drilling.
MOTT CORE DRILLING CO.
Huntington, West Virginia

CORE DRILLING ANYWHERE
We look into the earth
PENNSYLVANIA DRILLING COMPANY
PITTSBURGH 20, PA.

TWO DRAFTSMEN WANTED
Must be experienced on Cement or Lime Plants. Work involves layout, construction and detail drawings. Send all information, age, past experience, salary expected, etc. Location—Washington, D. C.
Box No. U 8, c/o Pit & Quarry Publications
538 So. Clark St. Chicago 5, Ill.

WANTED
MECHANICAL ENGINEER for LARGE EASTERN PORTLAND CEMENT CO. Must have experience in maintenance of equipment, plant design and layout.
Position demands wide experience in both field and office. Must be willing to travel.
Box No. U 9, c/o Pit & Quarry Publications
538 So. Clark Street, Chicago 5, Illinois

SENIOR MECHANICAL ENGINEER
Progressive manufacturer of equipment for cement, lime and metallurgical plants requires a design and mechanical engineer. Previous experience necessary. State experience, salary desired and references to
Box No. T-5
c/o Pit and Quarry Publications
538 So. Clark St. Chicago 5, Illinois

SALES ENGINEERS
Manufacturer of Heavy Machinery for Process Industries covering Rotary Kilns, Dryers, Ball Mills, Rolls and Crushing Machinery has openings for experienced men. Write, advising qualifications, experience and salary expected to
Box No. T-4
c/o Pit and Quarry Publications
538 So. Clark St. Chicago 5, Illinois

WANTED
One 4 or 5 cu. yd.
MODERN ELECTRIC SHOVEL
Box No. S 5, c/o Pit & Quarry Publications
538 So. Clark St., Chicago 5, Illinois

WANTED
5-roll High Side Raymond Mill with Whizzers and A.C. 440 Motors, or Low Side. Mail price and particulars to
S. G. LEOFFLER
300 26th St. N. W., Washington 7, D. C.

Wanted by Cement Chemist
Chemical employment. Experienced Analyst, Assistant, Research, Chief. Capable of exploitation for new projects, designing new laboratories, training personnel, starting new plants, helping improve mill operations and burning. Both USA and Latin American experience. Available on short notice.
Box No. T 3, c/o Pit and Quarry Publications
538 So. Clark Street Chicago 5, Illinois

WANTED
Young man with some chemical education for night superintendent of rotary lime plant—opportunity for early advancement—Mid-West location near good city—give experience and approximate salary requirements.
Box No. U 13, c/o Pit & Quarry Publications
538 So. Clark St. Chicago 5, Illinois

SALES REPRESENTATIVE CONNECTION WANTED
Former quarry operator, college graduate, with some experience selling heavy equipment to quarries, cement mills, producers of crushed slag, sand and gravel, and allied industries, desires a permanent sales connection with a manufacturer of, distributor of, or dealer in equipment or supplies used by the above mentioned type of industrials. Territory — eastern Pennsylvania and adjacent areas. For details write
Box No. T 8, c/o Pit & Quarry Publications
538 So. Clark Street Chicago 5, Illinois

WANTED
60" x 48" Jaw Crusher
42" Gyratory Crusher
THE NATIONAL LIME AND STONE CO.
Findlay, Ohio

WANTED
Obsolete machinery — iron and scrap of all kinds. Dismantlers and movers of Chemical and Power Plants, Gas Producers, and overhead Cranes.
Full Insurance Coverage.
TOLBERT BROS.
1940 Otto Pl. N. E. Canton 4, Ohio
Phones: 70025
32281

WANTED
BESSER SUPER VIBRAPAC and BESSER 50 cubic foot mixer
Location, condition and price.
Box No. R 14
c/o Pit and Quarry Publications
538 So. Clark St., Chicago 5, Illinois

WANTED TO BUY
SINGLE SHAFT JAW CRUSHER 15" x 36" UNIVERSAL OR SIMILAR
Box No. U 11, c/o Pit & Quarry Publications
538 So. Clark St. Chicago 5, Ill.

WANTED
SMALL USED ROLL OR JAW CRUSHER, LABORATORY SIZE
Must be reasonable and in good condition.
Box No. U 5, c/o Pit & Quarry Publications
538 So. Clark St., Chicago 5, Illinois

USED TRUCK MIXERS FOR SALE

ALL late models mounted on trucks and unmounted
ALL MAKES and SIZES from 3 yards to 5½ yards
Both HORIZONTAL and HI-DISCHARGE

BEFORE YOU BUY CHECK WITH US

We Will Also Rent Truckmixers to Reliable Parties

PHONE *WRITE* *WIRE*

JAEGER-LEMBO MACHINE CORPORATION

127th St. and Northern Blvd. **Flushing, L. I., New York**

Phone Newtown 9-7777

MINE AND SLOPE HOISTS

1—20,000# Dbl. Drum Mundy w/o motor
1—26,000# Nordberg Sgl. Drum
1—10,000# Nordberg Sgl. Drum AC
1—17,000# Ottumwa Sgl. Drum AC
1—11,000# Ottumwa Sgl. Drum AC
1—16,000# Allis Chalmers Sgl. Drum
1—30,000# Allis Chalmers Dbl. Drum AC
1— 7,000# Flory Sgl. Drum AC

CRUSHERS AND SCREENS

1—12x16 Eagle Dbl. Roll
1—18x20 Eagle Dbl. Roll
1—3B American Pulverizer
2—24x20 Jeff. Flextooth
1—Superior McCully 8" Gyratory
1—30x36 S. A. Ring type Knittel (never used)
2—4x10 S. A. Vibrating Screens
4—Tyler Vibrating Screens

CARPULLERS AND LOADERS

1—20,000# Lidgerwood Car Spotter AC
1—20,000# Amer. Hoist Spotter
1—5000# Jeffrey Carspotter AC
1—6000# Brownie Carspotter AC
1—5000# Link Belt Carspotter AC
1—Stephens - Adamson Heavy Duty Loader & Filer, 7½ HP. AC. Cap. 350 TPH ORE, Fertilizer & Sand. Portable on wheels, 30" belt.
1—3 yd. Sauerman Scraper bucket Sys.

MISCELLANEOUS

2—2½" Dayton Dowd 300 GM Cent. Pump, AC motor
1—48" Colo. Simplex Classifier
1—11B Sullivan Cutter with Bowdil bar, chain and bug duster, 50 HP DC motor.
1—PL1114 Joy Elevator, 10 HP DC, permissable motor.
1—B. E. 3¼ yd. Electric Shovel B85.

Hawkins & Co.

126 So. Michigan Ave., Chicago 3, Illinois
Telephone HArrison 7-0725

USED CONSTRUCTION EQUIPMENT PRICED TO SELL

Includes rock trucks, compressors, crushers, tractors and power units.

Write for complete information

NORTHWESTERN ENGINEERING COMPANY
Rapid City, S. Dak.

SPRING CLEARANCE

Priced to Sell

UNIVERSAL	#3	Rebuilt Pulverizer, 18 x 31"
GILSON	#14	Used Pulverizer. Cheap.
GILSON	#22	New Pulverizer—at used prices.
SIMPLICITY		2 x 3 Single Deck Screen. Slightly used.
SCHRAMM	"315"	Rebuilt Compressor
CLEVELAND	"DR-30"	Wagon Drill. Used.
CONTINENTAL	"M-330"	New 62 HP Power Unit @ wholesale.
CLETRAC	"40-D"	Used Diesel Tractor w/Hyd. Dozer
LE TOURNEAU	"J-12"	Used 12-yd. Scraper. Bargain price.
LORAIN	"30"	Used ½-yd. Dragline. 1946 Model.
P&H	"150"	Used ½-yd. Dragline. Here's a buy.
BYERS	"65"	Used ½-yd. Dragline. 1945 Model.

3240 W. State Street **Phone 4-6706**
EIGHMY EQUIPMENT COMPANY **Rockford, Ill.**

READY TO OPERATE—PRACTICALLY NEW FOR SALE OR LEASE

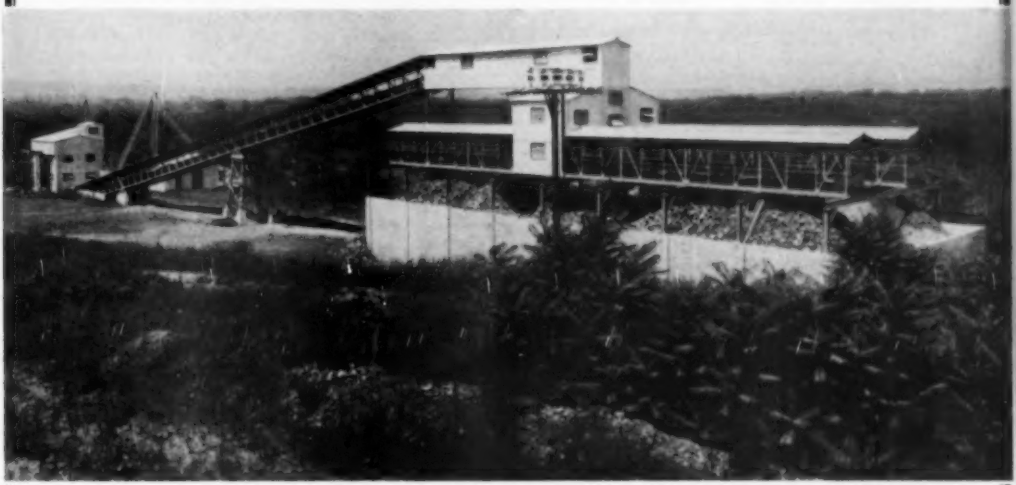
This extremely modern Limestone Quarry and Crushing Plant equipment now available. Complete in every detail, including extensive railroad and switching facilities and electric power.

Crushing Plant, illustrated, practically new! Has seen only moderate service in less than 2 years.

Replacement cost estimated over $700,000.

Extent of quarry about 225 acres of highest grade limestone, suitable for fluxing purposes, pebble limestone, road construction, agricultural and hydrate lime.

Estimated available limestone 10 to 15 million tons.



Plant equipment consists principally of Traylor 36" x 42" jaw crusher; reduction crushers; screens; bins; carloading facilities; belt conveyors. In a second section of crushing plant, not shown, are other items of belt conveyors; bucket elevators; screens and bins.

Estimated tonnage of assured business well over 200,000 tons a year.

Plant conveniently located where products will find many outlets.

Although plant is for outright sale, consideration will be given to propositions from responsible sources to operate on an equitable royalty basis.

Plant is located at Martinsburg, West Virginia.

Direct all inquiries to

Industrial Plants Corporation

90 WEST BROADWAY **NEW YORK 7, N. Y.**

BArclay 7-4185

CARLYLE

INDUSTRIAL RUBBER PRODUCTS FOR EVERY PURPOSE

IMMEDIATE DELIVERY OF . . . CONVEYOR, ELEVATOR AND TRANSMISSION BELTING — FIRE, WATER, SUCTION, AIR, STEAM AND WELDING HOSE

WHY WAIT - *WE HAVE EIGHT TO FORTY-EIGHT*

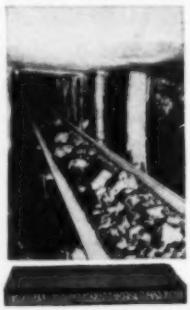
RUBBER CONVEYOR BELTING

TOUGH COVERS — Heavy duty, specially compounded abrasive resistant rubber covers having high tensile strength. Thoroughly capable of withstanding the abrasive action of bulk materials. Properly vulcanized to the carcass to assure utmost performance, economically.

STRONG CARCASS—Constructed of finest quality 28 and 32 ounce tough cotton duck, properly treated and impregnated to avoid mildew from moisture and atmospheric conditions. Each ply thoroughly embedded in rubber to prevent ply separation.

FLEXIBILITY—Careful attention has been given in the construction of all belts to have the proper flexibility assuring the following desirable features; troughs easily, runs true on all idlers, gouge resistant, excellent for long and short hauls and slope installations.

All our belting made by the leading belting manufacturers.



Write for Free Booklet on Installation, Care & Maintenance of Conveyor Belting.

Avoid delays in your production schedules!

We carry in stock for your immediate requirements, Conveyor Belting in widths from 8 inches to 48 inches.

Width	Ply	Thickness Top Cover	Thickness Bottom Cover	Type of Duck Carcass
8″	4	1/16″	1/32″	28 Oz.
10″	4	1/16″	1/32″	28 Oz.
12″	4	1/16″	1/32″	28 Oz.
14″	4	1/16″	1/32″	28 Oz.
16″	4	1/8″	1/32″	28 Oz.
18″	4	1/8″	1/32″	28 Oz.
20″	4	1/8″	1/32″	28 Oz.
20″	5	1/8″	1/32″	28 Oz.
24″	4	1/8″	1/32″	28 Oz.
24″	5	1/8″	1/32″	28 Oz.
26″	5	1/8″	1/32″	28 Oz.
30″	4	1/8″	1/16″	32 Oz.
30″	5	1/8″	1/16″	32 Oz.
30″	6	1/8″	1/16″	32 Oz.
36″	6	1/8″	1/16″	32 Oz.
42″	5	1/8″	1/16″	32 Oz.
48″	8	1/8″	1/16″	32 Oz.

INQUIRE FOR SIZES NOT LISTED.
ELEVATOR TRANSMISSION & V-BELTING ALSO IN STOCK

SEND US YOUR INQUIRIES FOR OTHER RUBBER PRODUCTS

CARLYLE RUBBER COMPANY, INC.

62-66 PARK PLACE, NEW YORK 7, N. Y. Phone: DIgby 9-3810

FOR SALE

PRIMARY CRUSHER: Pioneer Portable, 24x36, trailer mounted; caterpillar diesel engine, Model RDS Skid Mount; completely overhauled; located at Pioneer Engineering Works, 1515 Central Ave., Minneapolis, Minnesota.

SECONDARY CRUSHER: Pioneer Portable, jaws 37" wide and 22" deep, trailer mounted, Caterpillar Diesel Engine, Model D13000 Skid Mount.

CONVEYORS: Belt 24", 1—45' & 1—20' Centers, Screw 9", 1—14'; 12", 1—64'; 16", 1—14', 1—32'.

ELEVATORS, DBL. CH: 1—46' Center buckets 7"x14" spaced 24", 1—28' center buckets 12"x13" spaced 25" 1 Each 60' & 68' Centers buckets 5"x10" spaced 16" in 3"x2" steel casings. 1 Flight Conveyor 14"x14" 16'. All with drive gears and motors, idlers or supports.

MACERATOR: Komarek Greaves 36" x36"x23" dbl. shaft, steel shell C I ends, drive gears & motor.

TANKS: CENTRIFUGAL PUMPS; NIAGARA FILTER; VIBRATING SCREENS; ROTARY DRYER; TRANSFORMERS; ELECTRIC MOTORS; BUBBLE FRACTIONATING TOWER; GAS EXHAUST FANS. 24" & 30" RUBBER BELTING.

FIRST INVESTMENT CORPORATION

301 FIRST AVE. BLDG., MINOT, N. D.
Phone 31-114 Res. Phone 46-210

FOR SALE

VIBRATING SCREEN. BONDED SCALE CO.—open model 3' x 8', stainless steel mesh, 14 squares per inch. 2 HP electric motor used only 80 hrs. Price: F.O.B. Marion, Ohio..... $300.00

MARION CONTRACTING CORPORATION
139 E. Center St. Marion, Ohio

EQUIPMENT OFFERING BY OWNER

Filters
Vacuum Pumps
Rotary Coolers
Bucket Carriers
Cooling Tower
Car Pullers
Tanks

Partial listing available
200 items

Act Today — Save $ $ $

MILL & QUARRY EQUIPMENT COMPANY

Phone 5-7741 P. O. Box 1486
Baton Rouge, Louisiana

FOR SALE
D. C. GENERATOR SETS
Most Modern Design

4 Diesel Generator Sets mounted on a single factory built trailer (standard 5th wheel). Sets are G. M. Model 60-30C—24 V., starting with Model P.T.A.-11413 Power Take Off. Generators are Columbia Elec. Mfg. Co. 75 KW, 250 V., D. C., 300 Amp., 1600 R.P.M., Frame 32, 40 degree C. 24 hours compound winding. Each set mounted on separate base with breaker, R. C. Relay and Panel Board. Only 1500 operating hours. Will sacrifice complete unit at real bargain price of $19,500.00. Cost $33,000.00 new. Will consider sale of sets individually. Write:

Sunnyhill Coal Company
P. O. Box 7931, Pittsburgh 16, Pa.

GUARANTEED "REBUILT" POWER EQUIPMENT

SQUIRREL CAGE MOTORS — 3 Phase, 60 Cycle 220 or 440 Volt (*2200 Volt or Higher)

HP	Make	Type	Speed
750	*G.E.	KF	720
700	*G.E.	KF-56947	1800
600	*Westg.	CS-6-34-15	1200
500	*G.E.	K-559DZ	2800
500	*G.E.	IK	1800
500	G.E.	KTP-567	1200
2500	*G.E.	MT	257
2000	*G.E.	TM	360
1600	*Al. Ch.	ANY	257
1200	*G.E.	MT 26	277
1000	*Westg.	CW-424	500
1000	*Westg.	CW	720
800	*Westg.	CW	507

SLIPRING MOTORS 3 PHASE, 60 CYCLE 220 OR 440 VOLT

HP	Make	Type	Speed
600	G.E.	IM	350
600	*Cr. Wh.	SR	514
600	*G.E.	IM	900
500	*Ideal	AV-500	1800
500	*G.E.	IM	720
500	Al. Ch.	ANY	600
500	Westg.	HF	400

SEND FOR CATALOG NO. 50

Phone Canal 6-2900 Today

CHICAGO Electric Co.

1320 W. CERMAK RD. • CHICAGO 8, ILL.

First Source for 40 Years

L.B.SMITH INC. OFFERS

AIR COMPRESSORS

Worthington two-stage, water cooled, vertical 250 ㎥, 60 CFM, new condition.
Gardner-Denver, 105 foot, with air receiver, hose reel, driven by power take-off and mounted 1941 Ford.
Gardner-Denver air-cooled 105 foot with receiver, V-Belt driven from power take-off and mounted on 1942 Ford chassis with Wood two-yard dump body.
Gardner-Denver two-stage 160 ft., skid mounted.
Worthington 210 cubic foot, two-stage air-cooled, on skid base with Hercules diesel.
Chicago Pneumatic 210 cubic foot, two-stage, air-cooled, Caterpillar diesel on four rubber tired wheels.
Gardner-Denver 315 cu. ft. two-stage, skid mounted, Murphy four-cylinder diesel.
Pennsylvania 12" x 10" class 3A single cylinder, 355 cubic foot P.D., flat belt driven, 50 HP slip ring motor.
2—Gardner-Denver 500 cu. ft., 2-stage, water-cooled, Caterpillar D13000, on four pneumatic tires. Practically new.

BELT CONVEYORS

New 18" — 24" — 30" — 36"

SHOVELS & CRANES

Lorain 79 diesel powered 1½-yd. shovel.
Lorain 77 diesel powered 1½-yd. shovel & clam.
Marion 1-yd. diesel powered heavy duty truck crane on heavily reinforced Mack.
Lorain 41 heavy duty ⅝-yd. shovel-crane. New 1947. Weight 45,800 lbs.
Lorain 40A, ⅜-yd. shovel-clam, 30'' cats.
P&H Model 100 shovel ⅜ yd.
Lorain shovel and crane attachments.

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18 x 36 Farrell deep jaw crusher.
10 x 36 Cedarapids, practically new.
10 x 7 Allis Chalmers Blake type jaw crusher.
60 ton 2 compartment storage bin with clam shell gates.
Allis-Chalmers 5x14 double-deck screen
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NEW TELSMITH SUPER SCRUBBER

84" x 12' — Special Price

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Warco D76 grader. International UD14A diesel 27E Koehring paver.
3-yd. Jaeger Hi-Discharge mixer.
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½-yd. to 5-yd. dragline buckets.
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1½-ton Ford & Chevrolet.
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Sterling COE Model 255GCS tandem drive tractor, 200 HP Cummins supercharged diesel, excel. cond.
40-ton Rogers low bed equipment trailer, air-brakes, outriggers, excel. cond.
Van Trailers with 17'x7'8"x6' bodies. Five ton capacity.
2,000 gallon tanks on semi-trailer mounting.
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New JXD Hercules gasoline.
New Murphy 4 and 6 cylinder diesel.
GMC 6 and 12 cylinder. Practically new.
Buda, Hercules, Hill, rebuilt.

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1½ KW to 125 KW, alternating and direct current, gasoline and diesel powered.

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L.B.SMITH INC. CAMP HILL, PA. SUBURB OF HARRISBURG

WE OWN THE EQUIPMENT WE ADVERTISE

FOR SALE LOCOMOTIVES

G. E. 70 ton Diesel Electric—#13199—New Nov. 1941—Best Buy in U. S. A.
Plymouth—44 ton Diesel Electric—#4347—Cummins Engines—West. Elec. Equip. & Brakes.

2—Whitcomb gas, 6 ton, 24" ga.
1—Plymouth 25 ton Diesel, Std. ga.
2—Plymouth—15 ton—36" ga. Diesel—New 1947—#5039-40.

COMPRESSORS

1—I.R. 2000', 3/60/2200—#13282-3
2—Chi. Pneumatic, 1300', 3/60/220.

DERRICKS

2—American S.L., 10 ton, 75' boom.
1—American 70 ton @ 120'—135' boom—complete with American 3 Drum—256 H.P. Gas H-ist.
American 20 ton Guy derrick—115' M—100' B—Used one job. Like new.

CARS

28—Western 20 yd. Air Dump.
10—70 ton—4 Pocket Hopper Cars—P.R.R. type H-25.

LOCOMOTIVE CRANES

Orton 30 ton Diesel—Cat. D-13000—50' Boom—#42560
Browning 30 ton Steam—New 1944—#3537—Like new.
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CONTINUOUS ROTARY VACUUM FILTER

Oliver, 8' diam. x 10', with redwood stave shell, complete with motors, vacuum pump, and filtrate pump.

AIR COMPRESSORS — I. R. Centrifugal, 4-stage, single flow, 6500 CFM, 16㎥, M. D. (UNUSED).
Fuller, rotary, type C-300, single stage.
CARPULLER—L.B., 5000㎥, 5 HP motor.
CONVEYORS — L. B., Flat 24" wide, 30'. Rapid reversible power booster Mod. RPBC-1516, 16" x 15'.
CRUSHERS—
Williams Hammermill #3.
#6, Williams Hammer.
Jeffrey Swing Hammer, 36" x 24", A2.
Stedman Mill, 4-cage, 36".
DIESEL GENERATORS — 60 KW G.M. 6-71RC, 3/60/127/208/440, complete. Used only 100 hrs.
100 KW Hercules DNX-6, 3/60/127/220/440. Unit completely enclosed.
DRYERS & KILNS—
4'x30'x⅝", Traylor.
7'x45'x⅝", Link Belt.
3'10"x16', Link Belt, Roto Louvre.
7'6"x125', Allis-Chalmers.
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Jeffrey, 48', M1 Buckets, 10"x8".
FANS & BLOWERS—From 1000-40,000 CFM.
FEEDERS-VIBRATING—Syntron Type F33.
Jeffrey, 18"x36".
Allis-Chalmers, 36"x12"x6'.
PUMPS—Centrifugal—from 20 to 2500 gals. Vacuum, Stokes, Mod. 212C, 100 CFM.
Frederick Iron & Steel 8" DSV-SM, 2500 GPM, 150' H., 125 HP TEFC motor & Control panel.
REDUCERS—Ratio 4-1 to 263-1, 1 to 50 HP. Vari-Speed, ratio 2-1 to 6-1, 3 to 7½ HP.

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Heat and Power Co., inc.

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A used (Patch-Wegner Co.) coping and moulding machine No. 5296. Table length—169", 25 H.P. Contact.

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RAILS NEW AND RELAYING

MOST ALL SECTIONS IN STOCK also spikes, bolts, frogs, and switches available.
Always in the Market to buy surplus material. Send us your inventories.

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SCREEN—Three Deck Diamond Mogul Vibrator 5' x 12'.
HOIST—Thomas type K Single Drum.
HAMMERMILL—Upper section of 36 x 24 Jeffrey and some extra new parts.

G. & W. H. CORSON, INC.
Plymouth Meeting, Pennsylvania

FOR SALE

1—48" TELSMITH GYRASPHERE CRUSHER

BLUE BALL MACHINE WORKS
Blue Ball, Pennsylvania

FOR SALE

3—No. 14 Sanderson Cyclone Well Drills.

1—Howe Track Scale 83 ft. long 150 ton capacity.

1—10" Newhouse Crusher.

1—350 K.W. Allis-Chalmers Engine, Type Generator—3 phase, 25 cycle, 480 volt, 438 KVA. .80 P.F., 500 RPM.

2—100-HP Allis-Chalmers Slip Ring Motors—Type ARYH, 3 phase, 60 cycle, 440 volt, 580 RPM.

2—15-HP Allis-Chalmers Slip Ring Motors, Type ARY, 3 phase, 60 cycle, 440 volt, 1730 RPM.

1—2-HP Master Geared Head Motor —Type PA, 3 phase, 60 cycle, 440 volt, 575 RPM.

1—175-HP Ideal Induction Type Motor AV, 3 phase, 60 cycle, 440 volt.

1—75-HP Westinghouse Motor — 3 phase, 60 cycle, 440 volt.

1—50-HP G. E. Motor—Type MT 336, 3 phase, 60 cycle, 440 volt.

1—50-HP Pan Electric Motor — 3 phase, 60 cycle, 440 volt.

1—Allis-Chalmers 4" x 4" Electric Pump complete with 10-HP, 3 phase, 60 cycle, 440 volt motor.

1—Gould 1⅜" x 1" Electric Pump, Fig. 3640, complete with ½-HP, 3 phase, 440 volt motor, 60 cycle.

1—Roper 2¼" Electric Rotary Pump complete with 5-HP, 3 phase, 60 cycle, 440 volt motor.

2—Two-deck 36" x 60" Hummer Screens.

1—Ten Ton Plymouth Standard Gauge Locomotive with Ford V-8 Engine.

1—S. A. No. 2000R Speed Reducer.

1—6" Maxim Silencer.

2—Sullivan TM-300 Drift Drills.

2—Sullivan, Type MV-6 Drill Wagons.

1—International Power Unit, 6 cylinder UDR 760, Diesel.

1—Complete Cleveland Wagon Drill.

1—D-7 Caterpillar Tractor complete with Cable Controlled Dozer.

COLUMBIA QUARRY COMPANY
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SALE OR RENT

1—50' Crane Boom. New
1—15 Ton Keystone Truck Crane, 1945
1—½ yd. Insley K12 Crane
1—¾ yd. Koehring 304 Crane
1—¾ yd. Byers 88 S & C 1947
2—10-ton American Terry all steel Stiff Leg Derricks
1—30-Ton Orton Diesel Loco. Crane, 1941
1—30-Ton Browning Steam Loco. Crane, 1944
1—30-Ton Plymouth Std. Ga. gas Loco., 1943
1—44-Ton G.E. Diesel Elec. Loco., 1942

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RENTAL-PURCHASE PLAN

for good used guaranteed

EQUIPMENT!

FMC arranges that rental fee may be applied against final purchase price.

Rotary Dryers and Coolers 4'x40' and 5'x55'; ½" plate.

Tyle Hummer Screen 4'x5', others up to 4'x12'.

Day Ro-Ball Sifters 40"x120".

18 Steel Settling Tanks with cone bottoms and agitators; Sizes 10½'x20'; 16'x20'; 16'x26'.

Raymond Imp Mills No. 45.

Worthington 2 Stage Air Compressor 10½"x4¾"x12"; 500 PSI; 270 CFM.

Sturtevant Rotary Crushers #0 and #1.

Allis Chalmers Style K Rotary Crushers.

Lancaster S.S. Mixer No. EAG4; 10 HP.

Send us your inquiries.

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157 Hudson St., N.Y. 13, N.Y.

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CRUSHER EQUIPMENT

(1) One good used **Jaw Crusher,** 36" x 42" or 36" x 48", preferably with curved crushing plates and flywheel equipped for V-Belt drive.

(2) Jaw Crusher Feeder—Pan type—42" x 15' or 48" x 15'.

WRITE, WIRE OR PHONE
THE RUBEROID CO.
M. J. Messel, Supr.
Hyde Park Vermont

FOR SALE

1—Minneapolis-Moline Tractor, Model U T I, rubber tires, with Lull loader, ¾ yd. hi-lift bucket and dozer blade.
FOB St. Louis $2800.00

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1. NEW ¾ Yd. Crane, Shovel Dragline, truck mounted. Powered with 4 Cyl. "Le Roi" Gas Engine. Special Built from the latest power shovel design. Fast . . . Maneuverable . . . Ideal for Contractors, etc. . . With or without truck.

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Real Bargains—Will Sacrifice for Quick Sale.

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Jerseyville, Illinois

LOCOMOTIVES — CRANES
QUARRY TRUCKS

1—8 ton Plymouth standard gauge gasoline locomotive, built 1941, Buda engine.

1—7 ton Plymouth standard gauge gasoline locomitive, built 1941, Buda engine.

5—Euclid trucks, 15 ton rear dump with 12 yd. bodies. Cummins diesels.

BIRMINGHAM RAIL & LOCOMOTIVE CO.
BIRMINGHAM 1, ALABAMA

B.E. 85-B 3½ Cu. Yd. shovel — electric. N.W. Model 6-1-½ yd. N.W. Model 80—2 yd. Lima 1201—Cummins Engine—3 Cu. Yd. shovel. 22B—¾ Yd. Comb. others.
Tournapulls — Euclid trucks — Locomotives — dumpcars—Cranes.
Rotary Kilns—Dryers—10' x 90'—10' x 170' —others.
250 KVA—440 volt—G.E. Diesel Driven Generator set like new.
48" Gyrasphere Crusher complete—Gyratory Crushers—Roll Crushers—Jaw Crushers—60" x 42"—24" x 36"—20" x 36"—18" x 36"—15" x 36"—10" x 36"—Complete crushing plant including 42" x 36" Jaw. Others.
Cone Crushers—Rod Mills—Roll Crushers—Feeders—Classifiers—pumps—tuggers—mine hoists—Motors—Transformers—Conveyors—Portable gravel Plants—Blast Hole Drill. Many other items.

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Theatre Building Crosby, Minnesota

FOR SALE

2—29-T Bucyrus Blast Hole Drills, Electrically operated.

NEW YORK TRAP ROCK CORPORATION
230 Park Avenue
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VIBRATING SCREENS SCALES—CRUSHERS

CONVEYORS—FEEDERS CONVEYOR IDLERS

GUARANTEED EQUIPMENT — IMMEDIATE SHIPMENT

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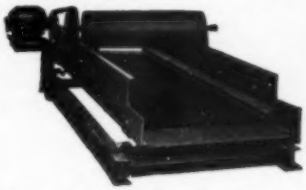
Heavy duty eccentric shaft types. 1 to 5 decks; screen sizes to 5 x 14. Priced from $1350 including cloth or plate.



Eccentric weight type screens. 1 to 3 decks; sizes to 3' x 8'. Including cloth or plates, from $395.

MOBILE FLIGHT CONVEYORS

Mounted on rubber tires and adjustable undercarriage. All welded structural and sheet steel; double guided heavy duty chain; steel flights to 6" x 24". Electric or gasoline power.

Priced from $450.00

CINDER, PUMICE, & PERLITE CRUSHERS

10 to 20 tons per hour capacity....$395.00
25 to 50 tons per hour capacity.... 945.00

CONVEYORS — PICKING TABLES

Troughing idler conveyors—picking tables. Any length, belt widths to 60".
Prices from $395.00

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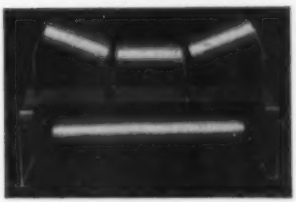

All steel. Interchangeable with other well-known makes. Replaceable precision ball bearings. No bearing adjustments required. Easy to start and will run in cold weather. Rust-proof ball races; maintenance is negligible. Build your own conveyors: we have standard sections, head and tail pulleys, take-ups, drives, idlers, speed reducers, sheaves, belting, etc.

3-roll Troughing Idlers for these sizes:

14" belt	$18.50	24" belt	$21.00
16" belt	19.00	30" belt	22.00
18" belt	20.00	36" belt	23.00
	42" belt 24.00		

1-roll Returning Idlers for these sizes:

24" belt	$ 8.25	36" belt	$ 9.75
30" belt	9.00	42" belt	10.50
	48" belt 11.25		

HEAVY DUTY FLIGHT CONVEYORS

Any length. Flights up to 6" x 24". All welded structural and sheet steel. Heavy duty, double guided chain.
Prices from $495.00

TRUCK SCALES

15 Ton Truck Scales.....$450.00
20 Ton Truck Scales..... 510.00
26 Ton Truck Scales..... 565.00

Others to 50 ton capacity. All truck scales complete with structural steel weighbridge. Weighing beams for all makes of truck scales.

More than 3,000 quarries, plants, and mines have modernized with Bonded equipment.

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BELTED: 315, 528, 676, 1000, 1500 & 1870 Ft.
ELECTRIC: 676, 807, 1902, 1122, 2850 & 3176 Ft.
DIESEL: 105, 313, 420, 500, 603, 807 & 1000 Ft.

CRANES — DRAGLINES — SHOVELS

9—Elec. Shovels, 17, 10, 8, 4, 2 & 1 Yd.
4—Walker Draglines, 3-6-9-16 Yd.
3—25 & 40 Ton 120 Ft. Boom Whirleys.
7—Loco. Cranes 20, 25, 30 & 40 Ton Diesel & Steam.
8—Diesel Shovels & Cranes 1 to 5 Yd.

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46—KOPPEL, 1½ Yd., 24 & 30 & 36 In. Ga., V shaped.
115—2 Yd., 3 Yd., 4 Yd. 36 In. Ga.
60—Std. Ga. 12 Yd., 18 Yd., 20 Yd. & 30 Yd. Cap.

BALL, ROD & TUBE MILLS

5' x 22", 6' x 48" & 7' x 48" Hardinge Conical Ball Mills.
3 x 3, 4 x 10, 6 x 6 & 7 x 5 Cylindrical Ball Mills.
3 x 8, 4 x 8, 4 x 10, 5 x 12 & 7 x 9 Rod Mills.
4 x 16 & 5½ x 20 Tube Mills, Steel & Silex Lined.

PULVERIZERS

3' x 24" & 6' x 48" HARDINGE Mills with Air Classifiers.
4 x 5 Roll Low Side RAYMOND Mills.
B. & W., RILEY & WHITING Coal Pulverizers.
No. 0 & 1 Raymond Automatic.

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3, 4, 10 & 14' Air Separators, STURTEVANT & GAYCO
6 x 14 Hardinge Counter Current.
6' x 37' - 6" x 22' Dorr Rake & Bowl.
24", 36" & 78" Spiral Classifier.

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Bucyrus Erie 27T, 29T & 50.
Loomis 44, Keystone 51 & 71.
2 - I. R. Quarry Master Drills
10—IR.-FMC.—Wagon Drills

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Blake Type—9x16, 10x20, 12x24, 13x24, 13x30, 18x30, 18x36, 24x36, 30x42, 40x48, 60x42, 84x60, 42x48 & 28x36
Single Shaft Type—9x10, 10x16, 11x18, 6x36, 10x30, 15x24, 13x30, 10x36, 15x36, 18x36, 20x36, 24x36, 10x40, 30x42
Cam & Roller Type—8x10, 6x20, 10x16, 10x20, 10x20, 11x18, 12x18, 12x22, 12x24, 12x26, 11x24, 11x20, 13x24, 14x26, 14x28, 15x36, 18x32, 9x40, 24x40, 22x50

REDUCTION TYPE CONE CRUSHERS

Allis Chalmers 322R Newhouse 5', 7' & 10'
Symons 2', 3', 4' Std. 5½' Short Head Tels. Gyro 24", 36"
Traylor 1'6", 2'4" TY No. 12 BH, 36", 48" TZ
Kennedy 19-S, 25-S, 37-S, 49-S

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Allis Chalmers K&N No. 3, 4, 5, 6, 7½, 9, 9, 12
Superior McCully 16", 20", 30"
Austin No. 3, 4, 105, 107, 8
Traylor Bulldog 12", 14", 16", 20", Tels. 10B, 13B

STEEL DERRICKS

GUY: 8 Ton 85 Ft. Boom, 15 Ton 100 Ft. Boom, 20 Ton 115 Ft. Boom, 50 Ton 100 Ft. Boom.
STIFF LEG: 5 Ton 70 Ft. Boom, 15 Ton 100 Ft. Boom, 25 Ton 100 Ft. Boom, 75 Ton 135 Ft. Boom.

ASPHALT TANKS

15—8000, 10000 and 20000 gal. cap. with coils.

RAILROAD CARS

100—8000 & 10,000 gal. cap. Tank Cars.
12—50 Ton Cap. Battleship Gondolas.
80—50 Ton Cap. Flat Cars.
10—Side Dump covered, 70 ton Hopper Cars.

LOCOMOTIVES

DIESEL: 15, 30, 45, 65 & 100 Ton.
GASOLINE: 3 Ton, 5 Ton, 8 Ton, 12, 14 & 30 Ton.
STEAM: 9 Ton, 20 Ton, 40 Ton, 60 Ton & 80 Ton.
ELECTRIC: 2 Ton, 5 Ton, 8 Ton, 17 Ton & 40 Ton.

HAMMER MILLS

JEFFREY 30 x 24 A, 36 x 24 & 36 x 42 B
STEDMAN 20 x 12
WILLIAMS #15 SLUGGER
GRUENDLER 2-XB — 3-XB & 6-XC
DIXIE — 3020 MOGUL JR. & 3650 PREMIER
PENNSYLVANIA CA-2-36 & C-7-36 Impactors and SNT-11 & 13

ROTARY DRYERS & KILNS

70" x 35' RUGGLES-COLES XB-10 Indirect
Double Shell 48" x 20', 80" x 45' & 104" x 85'
Direct Heat Dryers: 3 x 20, 5 x 35, 5 x 50, 6 x 30, 6 x 60, 7 x 30 & 7½ x 40, 8 x 50 & 90" x 60'
Kilns: 5 x 50, 6 x 60, 7½ x 125, 8 x 115 & 9 x 170

SCREENS

VIBRATING: 3x6, 3x8, 3x10, 4x5, 4x8, 4x10, 4x12, HUMMER, NIAGARA & ROBINS, LINK BELT.

R. C. STANHOPE, INC.
60 E. 42nd St. New York 17, N.Y.

FOR SALE OR RENT

Lowest Prices

Cranes, Diesel:

1—P. & H., 750, 2½ Yd. Dragline, Fairbanks Morse 44HD, slightly used, $16,000.00.
1—P. & H., 633A, 1½ Yd. Dragline, unused
1—NORTHWEST, 800, 2½ Yd., Barge-Mounted, unused
1—NORTHWEST, 6, 1½ Yd. Shovel, used, rebuilt, w new Murphy Diesel
1—NORTHWEST, 25, ¾ Yd. Shovel, 500 hours
2—LINK BELT SPEEDER, K370, 1¾ Yd., unused & used
1—BUCKEYE, 70, ¾ Yd. Combination, gas., 150 hours

Miscellaneous:

2—Cat. Tractor Pipe-Layer, w/Hyster 30 ft. Top Boom, 2000 hours, New overhauled, Ser. 7M4610 & 7399
2—QUICKWAY Truck Cranes, Mod. E, w/1 Accessory Trailer, new Shovel, Dragline, Clamshell, Pile Driver.
1—Compressor, 315 CFM., Chicago Pneumatic Mobile, Completely overhauled.
1—Lima ½ Yd. Shovel Front, new
2—Blaw-Knox Clamshells, Size 724H, new

SWEGER-KRISHUN CO.
8771 N. SAN FERNANDO ROAD
SUN VALLEY (L. A.), CALIFORNIA
Phone—Chase 7-8411

FOR SALE

225 HP Busch Sulzer 150 KW diesel engine generator set
2½ yard Bucyrus Erie 54-B diesel crane-dragline, new 1948
30 ton Davenport diesel switching locomotive, new 1942
30 ton Orton locomotive crane, diesel powered, built 1942
150 HP portable firebox boiler, ASME Code. 250# steam pressure.

MISSISSIPPI VALLEY EQUIPMENT CO.
507 Locust St. St. Louis 1, Mo.

FOR SALE

International T.D. 40 Tractor Ser. No. Tcc-6265 W/Gar Wood Angledozer available for immediate inspection.

Five HXC Hercules Engines. Used. All completely reconditioned within last year. One immediately available, others available within 2 or 3 months. Also, 5 transfer cases for above.

DISTRICT SAND & GRAVEL CO.
P. O. Box 4671 Anacostia 20, D. C.

FOR SALE

10—1948 and 1949 Int'l. Model KBS10 tractors
6—Int'l. Model KR11, 161" wheelbase trucks for mixers
12—Tank trailers for gas, oil or water use
1—Autocar, 5½ yard mixer truck, practically new
Equipment priced for quick sale

BERMAN SALES CO.
R. D. No. 1 Pennsburg, Pa.
Phone Pennsburg, Pa. 521

FOR SALE
IMMEDIATE DELIVERY
No. 14 Cyclone Electric Traction Blast Hole Drill
No. 4 Loomis Clipper Electric Traction Blast Hole Drill

THE MARBLE CLIFF QUARRIES COMPANY
S E. Long St. Columbus 15, Ohio

MACHINERY IMMEDIATELY AVAILABLE

2—5'x12" Two Surface Tyrock F-600 Screens Complete with Motors
This Equipment New
Has Never Been Operated

BLUE DIAMOND CORPORATION
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FOR SALE

ONE 150 TON, 50 FOOT LIVE RAIL FAIRBANKS, TYPE M RAILROAD TRACK SCALE.

CARBON LIMESTONE COMPANY
Lowellville, Ohio

FOR SALE

STURTEVANT NO. 2 RING ROLL MILL, also 10 foot Sturtevant Air Separator. All in operating condition.

FARMERS GUANO COMPANY
Box No. 372, Berkley Station
Norfolk 6, Virginia

CONVEYORS

Belt, Bucket, Drag or Gravity
Shaker & Vibrating Screens
Truck Scales Coal Crushers
Coal Drills Mine Fans
Car Spotters
Electric Motors — Floor Cranes
Mining and Stripping Equipment

WHAT DO YOU NEED?

THE INDUSTRIAL EQUIPMENT CORP.
910 First National Bank Bldg., Atlantic 1-2920
Pittsburgh 22, Pennsylvania

FOR SALE

1—6 x 10 Acme Jaw Rock Crusher
1—9 x 16 Day Model S No. 200 Crusher
1—10 x 20 Champion Rock Crusher Mounted on Steel Wheels with 10 x 12 New Holland Rolls
1—15 x 20 Austin Western Jaw Crusher Roller Bearing
1—15 x 24 Pioneer Jaw Crusher S411 Roller Bearing on Skids
1—4 x 40 Austin Western Jaw Crusher Roller Bearing
1—No. 6 Day Pulverizer 9½ x 16 Model L
1—16 x 16 New Holland Rolls

WEST VIRGINIA MINE SUPPLY COMPANY
Clarksburg, West Virginia
Phone 4-7491 Box 872

FOR SALE

1—4" Morris Dredge Pump New Model 4K
1—6" Gould double suction pump directly coupled to 75 H.P. G.E. Motor complete with G.E. Starting Compensator
1—13 x 24 Farrell Bacon Jaw Crusher New Jaw Plates — Never used Fully equipped with 50 H.P. G.E. Slip Ring Motor and Grid Starter and Controller and 4 Browning V Belts
1—4' x 16' Vibrating Screen

NICHOLAS G. MASOTTI

SAND AND GRAVEL COMPANY
R. D. No. 1 Vestal, New York
Phone Binghamton, New York

MINIATURE

DUST MASK

Keeps dust out of nose. Handy as pair of glasses. 9 sq. in. filter. Weighs only 1 oz. Order Today!
Only $1.00 p.p.

Jerry Bryant Products—Dept. 2
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FOR SALE

Autoclave 6 ft. 6 in. by 80 ft., ½ in. shell. Rod Mill 4 ft. by 9 ft. with 50 H.P. motor. Moorehouse portable, hydraulic, brick testing machine. Thomas double drum hoist with 20 H.P. motor.

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1—2' x 5' Selectro Vibrating Screen, practically new, fully enclosed, built-in feeder, including drive, less motor, f.o.b. Detroit.....$600.00

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8—8 yd. Std. gauge, steel heavy duty Easton Phoenix quarry cars.
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B-G 848 & Madsen 4000Z Hot Mix ASPHALT PLANTS—also others.
Washing & Screening & Port. Gravel Plants
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B-G82A Haiss 75W Loaders
17000 HP GE Syn. Motor 600 RPM 3/50/12000V
36" x 22" Link Belt Apron Conveyor
SHOVELS: ⅜ yd. Unit, ⅝ yd. Lima 34 both GAS. 1¼ yd. Lorain 77. 1½ yd. NW6. Lima 602. Koehring 604. P&H 655. 2 yd. Lorain 82. 3 yd. Lima 3201 all Diesel. 3¼ yd. Bucyrus 85B Elec. 30 ton Vulcan std. ga. Diesel Locomotive
Repros. NEW Universal Vib. Screens. Also used.

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2—Model 20A Conway Muckers, 24" Gauge, with 20 H.P., 220/440 Volts, 3 Phase, 60 Cycle Motor.
1—Model 50 Conway Mucker, 36" Gauge, with 75 H.P., 220/440 Volts, 3 Phase, 60 Cycle Motor.
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1—Model D2 Bucyrus-Erie 1 cu. yd. Diesel Crane with 45 ft. boom, Dragline Attachment and shovel attachment.

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Cedar Rapids two unit plant, practically new. 1524 jaw, 2416 rolls, 3x10 2 deck screen. Jaws and rolls show no wear. Two Case engines converted to tractor fuel. Tires same as new, brakes straight air. 400 tons/day 1¼ minus guaranteed. Good stock spare parts. Somebody's bargain for $13,000 subject to prior sale. Location northern Kentucky.

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Super C Tournadozer, C-11's, C Roadsters, D Roadsters, Super C Tournapulls, Various 12 to 24 yard Scrapers, Rooters, Sheepsfoot, Bucyrus-Erie E-2 Crane, Hydrocranes.

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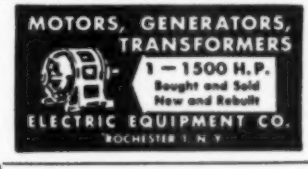

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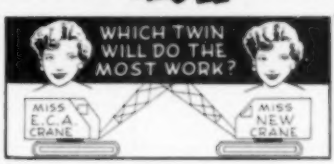
Gravel Pit—35-A, 47-Rw, 48-Chevrolet trucks, ½ yd. Thew shovel. Good going business. Price $8,500.00. Reason for sale, Partnership. Phone 3691 or write **Hilltop Gravel & Materials Co., Saranac, Michigan.**



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1—2¼ yd. Mdl. K37d Link Belt Diesel Crawler Crane #2215, with 50-65-75 or 85' boom and 17'6" jib, high gantry, hydraulic controls, D17000 engine. Will handle 47⅛ ton. Weight 148,000#.
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1—1⅝ yd. Lorain Model 88, No. 10750, with 65' boom, powered by Waukesha Henselman diesel engine.
1—1¼ yd. P&H Model 655-A, combination shovel, dragline and crane. Ser. 6426, powered by Caterpillar Model D13000 Diesel engine. Crane boom 75', shovel front 24' boom, 18' sticks. 1½ yd. manganese dipper.
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1—1¼ yd. #3 Northwest Ser. No. 4564. Powered with 6 cyl. Wisc. Model D91 gasoline engine. With 60' boom.
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1—1 yd. Erie Gas-Air Model GA-2 combination shovel and crane, Ser. No. 10679, powered with 4 cyl. Waukesha Model WL55 gasoline engine, with 47' crane boom. Shovel boom 22', sticks 17' with 1 yd. dipper.
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WE OWN 15 CRANES NOT SHOWN ON THIS LIST. SEVERAL CRANES LISTED ARE IN OUR RENTAL DEPT. ONLY.

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The only difference between new equipment and E.C.A. REBUILT equipment is the price. WHY PAY THE DIFFERENCE?

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60—Pumps, ranging in size from 1" to 10", capacities 25 GPM to 2500 GPM, with AC motors.

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1—10" Aurora Pump, Type SHIMB, power 50 HP AC motor, capacity 5,000 GPM at 17' head, 4,000 GPM at 32' head.

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20—Self priming centrif. pumps, sizes 1½" to 10", capacities 50 GPM to 3500 GPM, all gasoline powered, in such popular makes as Jaeger, Barnes, CH&E, CMC, Carter, Carver, Dayton Dowd, Gorman Rupp, Sterling, Novo, Marlow, etc.

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Portable and stationary, electric diesel & gasoline power, sizes from 2 cu. ft., 1,000 cu. ft.

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¾ yd. Universal Crane #872, with 25' boom mtd. on 10 wheel Hendrickson pneu. tired truck.

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1—15 ton Vulcan std. ga. locomotive. Ser. No. 3561. With special MCB couplings. Powered by 6 cyl. LeRoi Mdl. 2MS gasoline engine. Equipped with 4-wheel air operated brakes with 2 cyl. Westinghouse air compressor. Complete with starter and generator.

Ohio 30 ton Locomotive Crane—1947
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25 & 30 ton Locomotive Cranes
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2 yd. Hayward Orange Peel Bucket
L. S.-85 Link Belt Shovel, 1948

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At Lower Prices

Top Quality — Immediate Delivery

Width	Ply	Top-Bottom	Covers
16"	4	1/8"	1/32"
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20"	5	1/8"	1/32"
24"	4	1/8"	1/32"
24"	5	1/8"	1/32"
28"	5	1/8"	1/32"
30"	5	1/8"	1/16"
30"	6	1/8"	1/16"

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1 Model 51 Adams Grader. Engine rebuilt in 1948. Not used since. Fair condition throughout. Price $2000.00 as is and where is.

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Special.—Badger port. road gravel plant with 9x36 jaw and 36x20 roll crushers

Pioneer 4x10 screen
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UD-18 power unit
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24"x25' conveyor

Pioneer duplex portable plant
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1-4 with Hough front end loader
Barber-Greene 24x40 port. conveyor

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10" elec. sump pump
Universal ½ yd. crane
Byers 83 dragline
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All above equipment reconditioned in our own plant

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Motors and Generators, A.C. and D.C. for sale at attractive prices. New and Rebuilt. All fully Guaranteed. Send us your inquiries

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Two deck 3'x8' Seco vibrating screen
Two deck 3'x8' Selectro vibrating screen
Single deck 6'x8' Simplicity vibrating scalping screen
Single and double deck Universal vibrating screen
Four single deck 3'x5' Hummer vibrating screens
Single deck 4'x8' Tyler 400 electric vibrating screen
Double deck 18"x36" Niagara vibrating screen
American pulverizer, type 8T-T, ball bearing
Two 8-A 18"x18" Knittel crushers, ball bearing
Farrell-Blake jaw crusher, 10"x16"-A
Buchanan 10x16 jaw crusher
Champion #4 9"x15" jaw crusher
Jeffrey single roll 18"x18" coal crusher
Double roll 18"x28" heavy duty crusher
Allis-Chalmers 3IP gyratory crusher
Symons 2' cone crusher, 40 hp motor
Gruendler Aristocrat Peerless grinder, 16-40
Ten complete bucket elevators, open and enclosed
Inclined and vertical elevators with 12"-14"-16" buckets
Four enclosed elevators with 5" and 6" spaced buckets
Elevator belt, sprockets, chain, buckets, enclosures
Standard elevator, roller and drive chains
Steel thimble roller chain, 4"-6" and 9" pitch
250' of 30" belt conveyors, roller bearings
150' of 36" belt conveyors, roller bearings
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240' of 16" belt conveyors, plain bearings
Single strand flight coal conveyor—15" wide, 150' long
Apron feeders 18"-24" and 30"
48" new Standard wood apron conveyor 105' long
Portable belt conveyors, 10"x10', 18"x24', 14"x17', 16"x20'
Slat conveyor 30" wide, 50' long
Jeffrey #4 electric vibrating feeders
Screw conveyors and gravity conveyors
Reciprocating feeders for conveyors and elevators
Ing. Rand overhead 5 ton air hoist, new, on trolleys.
Magnetic belt pulleys and drums
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100 gear reducers, ½ to 99 HP
Gearmotors and variable speed motor units
Electric and air builders hoists
12"x12", 15"x15", 20"x20" bin gates
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ACME SPECIAL BARGAINS

Dismantling Northwest "105" crawler gas Crane, serial number in the 2000 series for parts.
"30B" crawler diesel quarry type Shovel, 1¼ yd.
Koehring crawler gas Crane and Dragline, ¾ yd.
The above overhauled, ready for work. Priced to sell.

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Gravel & Washing Plants
150 ton 3 compt. bin with scale & batcher
2⅛ yd. Bauerman Slackline
2⅛ yd., Crawler Crane, diesel $25,000.00

Stone the Crane Man
306 Architects Bldg. **Detroit 1, Michigan**

IOWA 32" x 40" RB. Portable Jaw Crusher with 12 ft. Apron Feeder. Murphy Diesel. Underconveyor. Tandem axle truck. Air brakes. New 1947. Excellent. Orig. cost $46,000.00—$25,000. Might rent.
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DIAMOND 40" x 20" Double Roll. Rebuilt at cost of $900.00. New bearings, bushings. $1250.00.
UNIVERSAL 9" x 36" r.b. Jaw Crusher. A1. $1400.
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P. & H. 60 H.P. Diesel Power Unit, 4¼" x 5½" 3 cyl. 1200 RPM. Factory rebuilt. $750.00.

Wenzel Machinery Rental & Sales Company
2136 Jefferson Street, Kansas City, Missouri

FOR SALE

1—2 ft. Nordberg Cone Crusher with fine bowl, including direct connected 40 HP, 600 RPM, 3 phase, 60 cycles, 440 volt motor. Many new parts for this machine are also available. Crusher can be seen in operation. Will be taken out of service soon and replaced with a larger capacity crusher.

Box No. U 2, c/o Pit & Quarry Publications
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For Sale—To settle estate of the late T. J. Hogan

2—Steel bins, 12' x 15.4' x 9.3'.
1—Steadman 30" heavy duty, single cage disintegrator.
1—Elevator frame 55' x 18" with head & tail rolls, new troughing rolls & tillers.
1—22'8" centers x 18" conveyor and new 18" belt.
1—4' x 10' double deck Seco vibrating screen with extra frames & new cloth.
1—Telsmith 5' plate feeder.
1—Fairfield 9' plate feeder.
8—Motors of various sizes and speeds, several are new.
1—G.E. Compensator, new S&K 17418, 50 H.P., 220 volt, 3 phase, 60 cycle.
1½—500' reels new wire, 500,000 C.M. strands. TBW P.S.D.
1—N. West crane, also shovel front, Wisconsin gas motor, ¾ yd. bucket, 90' boom.
Quantity of 3" & 4" pipe.

Mrs. T. J. Hogan, Locust Ave., Cortland, N. Y.
Tel. Cortland 1385

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Koehring Model 803, 2 cu. yd. Combination crane, dragline and clamshell. Gantry mounting also available.

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538 So. Clark St., Chicago 5, Illinois

1—Williams Hammer Pulverizer
1—5, 8 & 16 ton Plymouth Gas Loco. 36" ga.
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30 x 18 A. C. Blake Jaw Crusher
8 x 8 Bowzie Cem. Pump
30 H.P. G. E. Motor 1200-220-440 V. Late type.
125 H.P. Climax Gas Power Unit, 1944
Gas, Diesel & Electric Shovels

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Church Street **Youngstown 10, Ohio**

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SLACKLINE COMPLETE TO OPERATE
2-drum Mundy hoist; powered by J. Deere Tractor ⅝ yd. Pioneer bucket; mastpole; cable fittings, $2000.

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Two Universal ½ yard Truck Cranes on Mack AC chassis. In good operating condition suitable for use inside plant or yard.

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Complete Quarry now in operation. Central Missouri. $75,000. Equipment excellent. Capacity 100 tons per hour. Immediate possession.

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FOR SALE

½ yard Unit Shovel 1947 Model 5 14 with back hoe or shovel front.
D-6 Bulldozer 1949

LEVI H. BLATT
Rehrersburg, Pennsylvania

CONTRACTOR INTERESTED IN PARTICIPATING IN DEVELOPMENT OF MINERAL DEPOSITS MINED BY THE OPENED PIT PROCESS. PLANT AND PERSONNEL AVAILABLE.

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FOR SALE

30-KW — GENERAL MOTORS DIESEL DRIVEN
GENERATING SET
(including spare parts)
MODEL 3016-E—120/208 Volts—3 Phase
In original crates—has not been used.
PRICED TO SELL—write
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1—4 CU. YD. JAEGER HORIZONTAL TRUCK MIXER Mounted on a 1949 KB12 International Chassis.

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As manufacturers of these machines we are in a position to assure you as to condition and operating ability. Send for catalog

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GAS LOCOMOTIVE CRANE

25 ton cap. Orton gas locomotive crane, serial 43115. Powered with 6 cylinder Climax gas engine. Boom is 50'. Price $4750.00 FOB Chicago, Illinois; subject to prior sale.

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SPECIAL OFFERING

1—new 18 x 32 solid steel frame style D crusher.

1—new 14 x 26 solid steel frame jaw crusher.

1—#6 McCully crusher in good running condition just taken from service.

2—6' dia. 12 x 16' long scalping screens 2¼" manganese perforations.

A number of new manganese steel screen sections for Allis Chalmers 6' revolving screens 2¼" perforations.

New and rebuilt jaw crushers in all sizes from 6 x 10 to 42 x 60.

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1—B & W coal pulverizer
1—American pulverizer with 125 HP motor
1—Jeffrey hammer mill 24" x 36"
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1—Vacuum pump
1—Deck hoist
All steel dredge boats and tug boats
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Air Compressors
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Wood and steel bins, hoppers and tanks
Fuller-Kinyon pump 6"
1—10' x 150' kiln with new liners
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⅝" Banding tape
4" and 5" 2 and 3-way cement control gate valves
3—Small gasoline driven generators

OLLIE E. LAWRENCE
P. O. BOX 688
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1—Complete crushing plant consisting of the following:
24 x 36 Farrel Jaw Crusher
Heavy duty feeder
Conveyor
Traylor Secondary
3 ft. Telsmith Gyrasphere
4 Telsmith Vibrator Screens
All electric motors
Belt Bucket Elevator
Pennsylvania Pulverizer
1—13 x 30 Farrell Jaw Crusher
3—10 x 21 Telsmith Roller Bearing Jaw Crushers
1—20 x 30 New Holland Roll Crusher
1—16 x 24 New Holland Roll Crusher
1—16 x 16 New Holland Roll Crusher

BLUE BALL MACHINE WORKS
Blue Ball, Penna.

FOR SALE

New Spare Parts of Cedar Rapids Crushers, Screens and Conveyors.—Bargain Prices

1—29-T Bucyrus-Erie Blast Hole Drill

1—Bucyrus-Erie 120-B five-yard steam shovel with new spare parts.

New York Trap Rock Corporation
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CRUSHERS
Priced to Sell

REDUCTION CRUSHER 1 — Telesmith Model 32B. Cap. 20-24 tons ⅜". Max. size feed 5". Rebuilt. FOB S. F.....$1500

IMPACT CRUSHER 1 — Cedar Rapids Kubit size 3. Max. size feed 3", 4 and 6 hammer rotor. Cap. 30-50 tons/hr. Rebuilt. FOB S. F.....$2000

Ask for our complete equipment list.

COAST EQUIPMENT CO.
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FOR SALE

No. 26 Telsmith Gyrasphere Crusher complete with 29" V-belt pulley. In good serviceable condition. Presently installed in plant and can be demonstrated in operation.

MIAMI GRAVEL COMPANY
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Chillicothe, Ohio

1½ YD. P & H MODEL 655-A

COMBINATION SHOVEL-CRANE—D-13000 CATERPILLAR — Used 15 months — First class condition.

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1 Bucyrus-Erie Shovel, serial number 14679, Waukesha 6 engine, 13' 6" boom, 11' 0" dipper stick with ¾ yard dipper in good working order.

KENTUCKY-TENNESSEE CLAY COMPANY
Mayfield, Kentucky

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1—10 inch Morris Solid Liner dredge pump with Thrust bearing both mounted on one base. 3 pieces "Condor" 10 inch rubber sleeves 6 ft. to 10 ft. long with fittings.

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FOR SALE

We have several Allis Chalmers Gyratory Crushers in sizes 4 and 5, IT & K Models, which we guarantee are in good operating condition. If interested contact us as the prices are right.

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BIRD CENTRIFUGE: Solid bowl type, continuous, capacity 30 tons per hour, 30% to 60% solids, with 100 H.P. motor. NEW condition.

CARS: 20 Western and Koppel, 20 yd., all steel, air dump, cast steel trucks, rebuilt.

TRUCK CRANE: Bay City 20 ton, 80 ft. boom, on cranemobile 10 wheel truck.

CRAWLER CRANE: Northwest model 80-D, diesel.

DRAG SCRAPER OUTFITS: Sauerman 50 H.P., 75 H.P. and 150 H.P., complete with all accessories.

JAW CRUSHERS: Farrel 15-B, size 24 x 36, manganese fitted, with or without motor and drive. Pioneer 24 x 36 portable, with or without diesel power. Also, all sizes 4 x 6 to 48 x 60".

GYRATORY CRUSHERS: All sizes 6" x 20" to 42"x134."

GYRATORY CRUSHER—SPECIAL: Allis Chalmers Superior McCully 30", manganese fitted.

REDUCTION CRUSHERS: Symons 2 ft., 3 ft., 4 ft. and 5½ ft. Telsmith 24" Gyrasphere. Good Roads 1040. Traylor 36" TY.

DRYERS & KILNS: Single Shell—40" x 30 ft., 48" x 46 ft., 60" x 35 ft., 70" x 42 ft., 90" x 60 ft., 96" x 125 ft., 120" x 90 ft. Double Shell—80" x 60 ft.

TRUCKS: 30 Euclid bottom dump, also, end dump, with rock bodies. Cummins 150 H.P. and 275 H.P. diesel motors, with booster steering.

DRILLS: Bucyrus Erie 29T electric or gas with 9" bits.

PULVERIZER: B & W Coal Pulverizer size 32, capacity 7500 lbs. of coal per hour.

HARDINGE MILLS: 5' x 22", 8' x 20", 8' x 30".

DIESEL LOCOMOTIVE: Plymouth 25 ton, standard gauge with caterpillar diesel motor.

MINE HOISTS:
1—Double drum, 120" x 60", 1¾" rope, 1000 H.P.
1—8' dia., 6'6" face, 600 FPM, 1000 H.P., 1¼" rope, 2200 volt, 450 RPM.
1—All steel, drum 8 ft. dia., 1½" rope, 64,000 lbs. single line pull, 600 FPM, 400 H.P., 2200 volt, A.C.
1—250 H.P., single drum, 7'3" x 5', 30,000 lbs., single line pull, 750 FPM.
1—150 H.P., double drum, 38" dia., 42" face, 440 volt, A.C.

All the above Hoists complete with control equipment.

A. J. O'NEILL
Lansdowne, Pennsylvania
Phila. Phones: Madison 3-8300—3-8301

FOR SALE

1—150 H.P. Cooper-Bessemer Hope Type gas engine
1—75 K.W. Generator, 3 phase
1—Excitor
3—Transformers
1—Ledgerwood 2 drum winch with 75 H.P. motor
1—Mast approx. 80' high
2—1 yd. Sauerman buckets
1—Set bucket carriers
1—4" Worthington Pump with 20 H.P. motor
5 to 10 H.P. motors with misc. equipment

Will sell the above equipment at a bargain if it can be disposed of at once as we are installing sand pump equipment.

CHARLESTON SAND CORP.
Phone 21652
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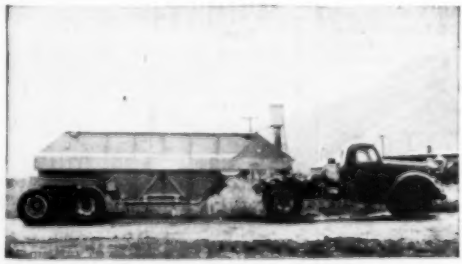

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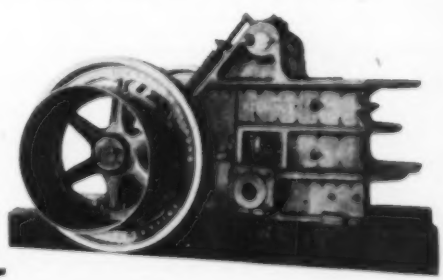

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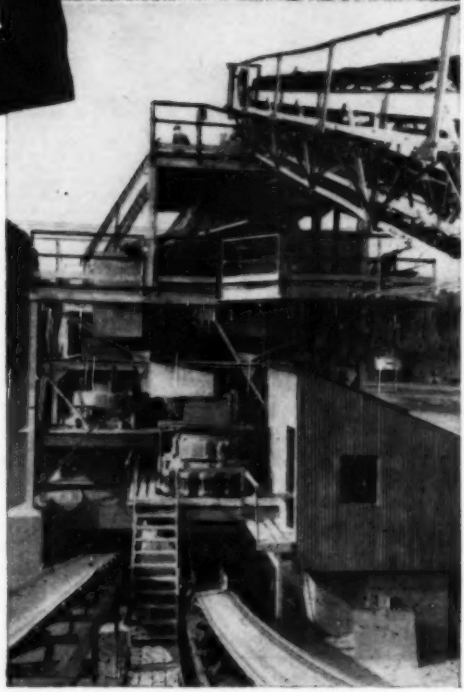

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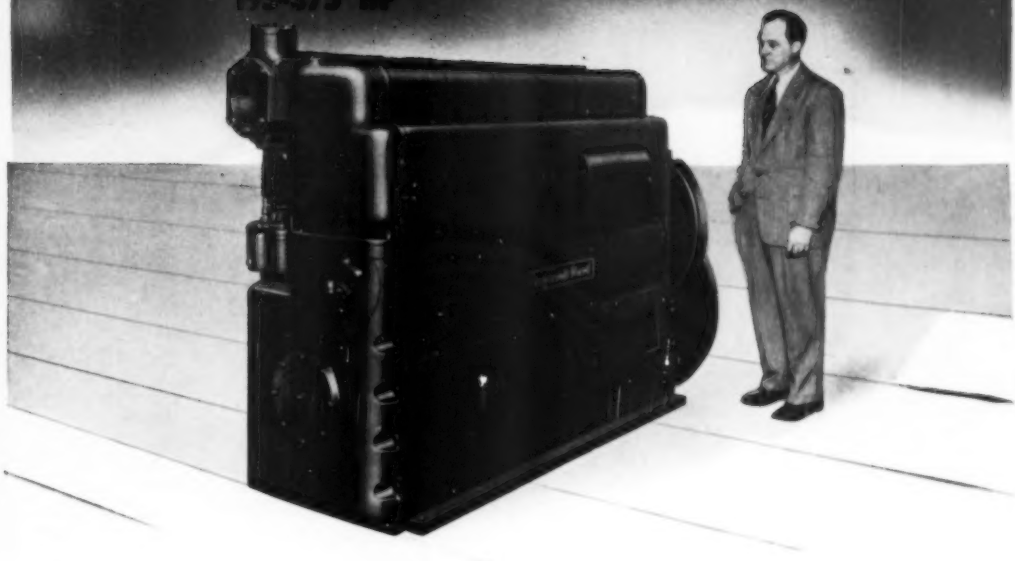

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